

THE STUDY OF MINORITY COMMUNITIES AND THE WASTE STREAM

July 2002

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TABLE OF CONTENTS

Acknowledgements	iii
Executive Summary	iv
Introduction	1
Methodology	3
Geographic Areas Included in the Study	3
Jurisdictions Selected for Study	3
Groupings of Jurisdictions Based on Diversion Rate.	4
Groupings of Jurisdictions Based on Percent Hispanic	5
Data Sources.	6
Findings of the Study.	8
Jurisdiction Geographic and Demographic Characteristics	8
Selected Characteristics of Jurisdictions with Higher Diversion Rates ...	29
Comparison of Waste Stream Characteristics Based on Population Diversity.	33
Comparison of Jurisdiction Waste Reduction Programs Based on Population Diversity.	38
Comparison of Jurisdiction Diversion rates Based on Population Diversity	44
Preliminary Jurisdiction Survey Results.	47
Possible Cultural Factors Affecting Waste Reduction Efforts.	49
Summary, Conclusions, and Recommendations	52
Summary of Findings	52
Conclusions and Recommendations.	55

Suggested Issues for Future Study	58
Table One: Selected County Characteristics.....	64
Table Two: Selected Jurisdiction Characteristics.....	68
Table Three: Selected Characteristics of Jurisdictions with High Diversion Rates	76
Table Four: Jurisdiction Waste Stream Characteristics	81
Table Five: Jurisdiction Waste Reduction Programs	83
Table Six: Jurisdiction Diversion Rates Based on Population Diversity ...	86
Appendix A: Academic Resume of Consultant	87
Appendix B: Questionnaire Used for the Jurisdiction Survey	98

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EXECUTIVE SUMMARY

INTRODUCTION

In June 2001, the California Integrated Waste Management Board (Board) contracted with Dennis H. Tootelian, Ph.D. at California State University, Sacramento (CSUS) to assist it in conducting a study of minority communities and the waste stream in California. The overall purpose of the study was to assist the Board and local jurisdictions in evaluating and determining the programmatic needs to meet their diversion goals.

The goals for this study were to promote and foster a better understanding of the cultural diversity of the State and the impact increasingly diverse communities may have on waste stream reduction and diversion programs; develop a tool by which local jurisdictions can evaluate the effectiveness of their waste reduction programs as it relates to diverse populations; and, develop a tool by which the Board can evaluate the effectiveness of Board programs in addressing the needs of the diverse population in the State.

KEY FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

The Summary and Conclusions contains a summary of the key findings, conclusions and recommendations, and general issues that should be addressed in the future. More detailed summaries and conclusions are presented in the full report.

Summary of Findings

The findings are organized around the critical issues identified for this study.

Characteristics of Jurisdictions with Diversion Rates of 50.0 or Higher. Comparisons of jurisdictions with diversion rates of 50.0 or higher and those with diversion rates of less than 50.0 indicated that smaller household and/or business waste streams do not necessarily result in higher diversion rates. On a pounds-per-population basis, the jurisdiction group with diversion rates of 50.0 or more had at least 57.00% larger household waste streams, and 28.00% higher business waste streams, than the jurisdiction group with diversion rates of less than 50.0. Residential daily disposal also was higher in the jurisdiction group with diversion rates of 50.0 or more.

In comparing the average number of waste reduction programs used by the two jurisdiction groups (i.e., those with diversion rates of 50.0 or more, those with diversion rates of less than 50.0), it is evident that sheer numbers are not critical. In most waste reduction program categories, the jurisdiction group with diversion rates of less than 50.0 has more programs in place than does the jurisdiction group with diversion rates of 50.0 or higher.

The jurisdiction group with diversion rates of less than 50.0 also had significantly more public grant dollars available to them since 1990 than did the group with diversion rates of 50.0 or higher. However, when examined on the basis of dollars per person, jurisdictions in the latter group received \$0.94 per person versus \$0.24 per person in the jurisdiction group with diversion rates of less than 50.0.

Amount of Waste Streams. Jurisdiction groups with higher percentage Hispanic populations had significantly smaller household and business waste streams than did those with lower percentages of Hispanics in their populations. The total household waste stream was 51.09% smaller, and the total business waste stream was 55.75% smaller. Furthermore, there is no apparent difference in the nature of the household waste streams between jurisdictions with higher or lower percentages of Hispanics in their populations.

Waste Reduction Programs and Population Diversity. The jurisdiction group with a smaller percentage of Hispanics in their populations had more waste reduction programs than did the group with a larger Hispanic population. Twenty programs were more often used by the jurisdiction group with a small percentage of Hispanics, versus twelve programs by the group with a larger percent of their population being Hispanic.

Diversion Rates and Population Diversity. Comparisons of diversion rates between jurisdiction groups with larger and smaller Hispanic populations showed that the average diversion rate was 30.59% higher for jurisdictions with a larger percentage of Hispanics in their populations than those with a lower percentage of Hispanics in their populations. Furthermore, jurisdictions with diversion rates of 50.0 or higher had a greater percentage of their populations being Hispanic than did jurisdictions with diversion rates of less than 50.0.

Conclusions and Recommendations

Based on the findings of this study, several conclusions and recommendations merit special consideration.

Jurisdictions with large waste streams tend to have higher diversion rates. Accordingly, jurisdictions should ensure that their programs focus on increasing diversion rates and not just lowering household and/or business waste streams.

There are strong indications that jurisdictions with more diverse populations have smaller waste streams than do those with less diverse populations. Diverse populations may be more receptive to waste management programs and already utilize waste reduction techniques. To that extent, they may represent good models for developing programs and appeals to the broader population.

There are few, if any, differences in the types of waste streams generated by diverse and non-minority populations. Therefore, there does not appear to be a need for major capital

expenditures for special facilities for targeting the waste streams of diverse groups. Accordingly, jurisdictions should examine how they communicate with diverse populations concerning issues of waste management since the programs should be equally appropriate.

Highly diverse populations present significant opportunities for jurisdictions that seek to improve their diversion rates. These populations are growing in size and can be targeted with promotional appeals relatively efficiently. The CIWMB and/or jurisdictions need to periodically study the diverse populations to better understand their awareness of waste management programs, their attitudes towards waste management, their practices with respect to recycling and other waste management processes, the nuances of their cultures that could affect the marketing efforts directed to them, and the communication methods that would most effectively reach them.

The factors that directly affect diversion rates are not well established. Since the magnitude of waste streams appears not to be the sole factor in determining diversion rates, a critical issue that needs to be addressed is what factors most affect diversion rates, and how are they linked to diverse and non-minority populations. If they have not done so already, the CIWMB and/or jurisdictions need to undertake a study(s) to more clearly define the factors that affect diversion rates, and determine whether particular combinations of waste management programs achieve better diversion rates in jurisdictions with similar characteristics.

The number of waste reduction programs does not appear to be directly related to diversion rates. However, differences exist in the types of programs employed among those whose jurisdictions with diversion rates of 50.0 or higher when compared to jurisdictions with diversion rates of less than 50.0. Therefore, if they have not done so already, the CIWMB and/or jurisdictions should develop methodologies that can be used to measure the quality and results of waste reduction programs. These templates will help jurisdictions assess the effects and cost effectiveness of their programs.

Grant funding does not show clear lines of benefit. It is unknown whether the number of grants, their dollar value, or the nature of the grants have a significant impact on diversion rates. Accordingly, the CIWMB and/or jurisdictions should periodically assess how grant funds impact diversion rates.

Suggested Issues for Future Study

The results of this study suggest that several issues need further analysis if diversion rates are to rise, diverse populations are to be served appropriately, and environmental justice is to be achieved. Questions that need to be addressed include:

- *What are jurisdictions doing in terms of their programs, processes, and marketing efforts to serve diverse populations and ensure environmental justice?* If not already being done, periodically conduct an in-depth survey of jurisdictions to determine what programs they are using to manage waste streams, control the

import of wastes, and increase diversion rates in diverse communities. Particular attention could be given to educational programs being used, and what safeguards are in place to ensure environmental justice.

- *What are the diverse populations' levels of awareness of, attitudes toward, and participation in waste stream management and waste reduction programs?* Periodically conduct an extensive survey(s) of the diverse populations to assess their awareness and understanding of waste management practices, their attitudes toward recycling and other waste management programs, etc.
- *What impact do waste reductions programs have on the local economies in which they are utilized?* If not already available, develop a methodology for evaluating the economic impact on communities of having waste facilities located nearby. The positive (e.g., jobs) and negative (e.g., housing values) impacts could be identified, and a process developed for generating data to better assess the economic consequences. This methodology could be used in making a broader assessment of environmental justice.
- *How good are the waste reduction programs, what are their costs and benefits, and what are their impacts on diversion rates?* If not already available, develop a methodology for examining the magnitude and quality of individual waste reduction programs, the relationship between the resources committed and the results, and the extent to which they individually and in combination contribute to achieving targeted diversion rates. Include in this analysis a means for estimating what size and composition of population base is necessary to justify the development of particular waste management programs.
- *What factors affect diversion rates, and how does each contribute to achieving or not achieving the targeted goal?* If not already completed, conduct a two-phase study that first identifies the factors that affect diversion rates, and then examines how those factors influence waste management in diverse and non-minority populations.

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY CALIFORNIA INTEGRATED WASTE MANAGEMENT BOARD

THE STUDY OF MINORITY COMMUNITIES AND THE WASTE STREAM

INTRODUCTION

In June 2001, the California Integrated Waste Management Board (Board) contracted with Dennis H. Tootelian, Ph.D. at California State University, Sacramento (CSUS) to assist it in conducting a study of minority communities and the waste stream in California. The overall purpose of the study was to assist the Board and local jurisdictions in evaluating and determining the programmatic needs to meet their diversion goals.

With the enactment of AB 939, local jurisdictions were mandated to submit to the Board an Integrated Waste Management Plan (IWMP) that identified how they would meet a 50 percent waste reduction by the year 2000. Public Resources Code (PRC) 42540 provides that "...the Board shall provide technical assistance to counties and cities to assist in development, revision, amendment, and implementation of local city source reduction and recycling elements and countywide integrated waste management plans."

The goals for this study were to:

- Promote and foster a better understanding of the cultural diversity of the State and the impact increasingly diverse communities may have on waste stream reduction and diversion programs.
- Develop a tool by which local jurisdictions can evaluate the effectiveness of their waste reduction programs as it relates to diverse populations.
- Develop a tool by which the Board can evaluate the effectiveness of Board programs in addressing the needs of the diverse population in the State.

The critical issues addressed in this study were:

- What are some of the important demographic and business characteristics of each jurisdiction?
- Do jurisdictions with more diverse populations have more, the same or less waste streams compared to jurisdictions with less diverse populations?
- Do jurisdictions with more diverse populations have different types of waste streams compared to jurisdictions with less diverse populations?
- Do jurisdictions with more diverse populations have higher, the same, or lower waste import and/or export rates compared to jurisdictions with less diverse populations?
- Do jurisdictions with more diverse populations have more, the same, or fewer waste management programs compared to jurisdictions with less diverse populations?
- How successful are waste reduction efforts, as measured by their diversion rates, in jurisdictions with more diverse populations compared to jurisdictions with less diverse populations?
- Do jurisdictions with more diverse populations, and higher diversion rates, use particular waste reduction programs or combinations of programs?
- How successful do jurisdictions consider their various waste management programs to be for reducing waste streams among diverse populations?
- What special efforts do jurisdictions make to target and adapt waste reduction programs to diverse populations, and how successful do they consider their efforts to be?
- What cultural factors within diverse populations could enhance and/or hinder jurisdiction efforts to reduce waste streams?

Dennis H. Tootelian, Ph.D., is a Professor in the College of Business Administration at CSUS. He has extensive experience in conducting fiscal impact studies, market research as it pertains to diverse populations, market analyses and marketing strategies, and strategic planning. Results of some of his research and writings have appeared in *The Congressional Record*, *The Wall Street Journal*, *Forbes*, *The Kiplinger Report*, *USA Today*, and even *The National Enquirer*. Dr. Tootelian has worked in a consulting capacity with numerous state governmental agencies, Fortune 500 companies, and professional and trade associations. A copy of his condensed academic resume is contained in Appendix A.

METHODOLOGY

For purposes of this study, the jurisdictions within California were classified by geographic area, and then on the basis of diversion rates and population size. In particular, the jurisdictions were divided on the basis of the percentage of their populations that were of Hispanic origin, and on the basis of whether they had diversion rates of 50.0% or higher.

The reason for classifying jurisdictions on the basis of the Hispanic population is that it is the largest of the diverse populations in California. In 1999, the time period used for this study because that was the latest year for which statistics on diversion rates were available, Hispanics comprised more than 30.3% of the state's population. According to California Department of Finance estimates, this population group would grow from approximately 10.4 million to 14.0 million, or 34.9% of the State's population by the end of 2010. *Therefore, the Hispanic population is the focus of this study as it relates to population diversity.*

Geographic Areas Included in the Study

A sample of California jurisdictions was analyzed for purposes of addressing the issues of this study. Initially, five geographic regions were selected for analysis:

- San Francisco County.
- The Bay Area (Alameda, Contra Costa, Santa Clara counties).
- The Greater Sacramento Area (El Dorado, Placer, Sacramento counties).
- Los Angeles County.
- Orange County (Orange County).

These five geographic areas represent 55.5% of the State's population. Additionally, 63.8% of California's minority population reside in these areas, including 60.6% of the Hispanic population, 71.7% of the Asian-American population, 67.5% of the African-American population, 35.3% of the American Indian population. Accordingly, the areas included in this analysis represent a majority of the State's overall population and a majority of each of its minority populations other than American Indian.

Jurisdictions Selected for Study

Within each of the five geographic areas, the three jurisdictions with the highest diversion rates, the three jurisdictions with the lowest diversion rates, and the three largest jurisdictions in terms of population were selected for study. This made it possible to examine jurisdictions with relatively high and low diversion rates, and jurisdictions with the largest populations. Since many jurisdictions have relatively small population bases, this latter group ensured that the analysis focused in part on communities in which sizable portions of Californians reside.

A total of 36 jurisdictions were included in the study. San Francisco County had only one jurisdiction, and the one of the largest jurisdictions in the Greater Sacramento area also had one of the lowest diversion rates. The jurisdictions analyzed were:

- San Francisco County: only one jurisdiction.
- Bay Area:
 - Highest Diversion Rates: Alameda-unincorporated, Monte Sereno, Pittsburg.
 - Lowest Diversion Rates: Brentwood, Clayton, Emeryville.
 - Largest Populations: Fremont, Oakland, San Jose.
- Greater Sacramento:
 - Highest Diversion Rates: Colfax, Galt, Placerville.
 - Lowest Diversion Rates: Rocklin, Roseville, Sacramento county/City of Citrus Heights.
 - Largest Populations: Folsom, Roseville (duplicate with lowest), Sacramento.
- Los Angeles County:
 - Highest Diversion Rates: Avalon, Bradbury, El Segundo.
 - Lowest Diversion Rates: Gardina, Pico Rivera, San Gabriel.
 - Largest Populations: Glendale, Long Beach, Los Angeles.
- Orange County:
 - Highest Diversion Rates: Huntington Beach, Lake Forest, Villa Park.
 - Lowest Diversion Rates: Laguna Hills, Los Alamitos, Orange-unincorporated
 - Largest Populations: Anaheim, Garden Grove, Santa Ana.

Grouping of Jurisdictions Based on Diversion Rate

To examine possible differences between jurisdictions based on their diversion rates, they were grouped into two categories: those with **diversion rates of 50.0 or higher (>50.0 Group)**, and those with **diversion rates of less than 50.0 (<50.0 Group)**.

The result of this grouping was that thirteen jurisdictions were in the >50.0 Group, and twenty-one were in the <50.0 Group. Two of the jurisdictions, Alameda Unincorporated and Orange County Unincorporated, were not examined on this basis because demographic data was not available for examining possible differences between the jurisdictions.

Accordingly, the >50.0 Group and <50.0 Group jurisdictions were:

- **>50.0 Group:** Anaheim, Avalon, Bradbury, Colfax, El Segundo, Galt, Garden Grove, Huntington Beach, Lake Forest, Monte Sereno, Pittsburg, Santa Ana, and Villa Park.
- **<50.0 Group:** Brentwood, Clayton, Emeryville, Folsom, Fremont, Gardena, Glendale, Laguna Hills, Long Beach, Los Alamitos, Los Angeles, Oakland, Pico Rivera, Placerville, Rocklin, Roseville, Sacramento, Sacramento county/Citrus Heights, San Francisco, San Gabriel, and San Jose.

Grouping of Jurisdictions Based on Percent Hispanic

To examine possible differences between jurisdictions based on the diversity of their populations, they were grouped into three categories: those with a **higher percentage of their populations being Hispanic (i.e., Higher Percent Hispanic or "HPH")**, those with a **moderate percent being Hispanic (i.e., Moderate Percent Hispanic or "MPH")**, and those with a **lower percent being Hispanic (i.e., Lower Percent Hispanic or "LPH")**. Approximately 30.3% of an average county's population in California is Hispanic. Percentages over that level were considered to be higher, and percentages of at least half that level were considered to be moderate. Accordingly, **"HPH Group"** was defined by the analyst to include jurisdictions where at least 31.00% of their populations were Hispanic. **"MPH Group"** was defined to include jurisdictions where 15.00% to 30.99% of their populations were Hispanic; and, **"LPH Group"** was defined to include jurisdictions where less than 15.00% of their populations were Hispanic.

The result of this grouping was that ten jurisdictions were in the HPH Group, nine were in the MPH Group, and fifteen were in the LPH Group. Two of the jurisdictions, Alameda Unincorporated and Orange County Unincorporated, were not examined on this basis because demographic data was not available for defining the nature of their diverse populations.

Accordingly, the HPH, MPH, and LPH Groups consisted of the following jurisdictions:

- **HPH Group jurisdictions:** Anaheim, Avalon, Bradbury, Brentwood, Gardena, Los Angeles, Pico Rivera, San Gabriel, San Jose, and Santa Ana.
- **MPH Group jurisdictions:** El Segundo, Galt, Garden Grove, Glendale, Huntington Beach, Lake Forest, Long Beach, Pittsburg, and Sacramento.
- **LPH Group jurisdictions:** Clayton, Colfax, Emeryville, Folsom, Fremont, Laguna Hills, Los Alamitos, Monte Sereno, Oakland, Placerville, Rocklin, Roseville, Sacramento county/Citrus Heights, San Francisco, and Villa Park.

Data Sources

Data for the analyses summarized in the Findings and presented in the tables was obtained from a variety of sources, including the California Integrated Waste Management Board reports, California Department of Finance reports, California Employment Development Department reports, the California Assembly and Senate bills, and private published sources. These are itemized below:

- California Integrated Waste Management Board reports:
 - "Diversion Rate Statistics," California Integrated Waste Management Board, 2001 web site.
 - "Jurisdiction Diversion Program List," California Integrated Waste Management Board, 2001 web site.
 - "Jurisdiction Profile Overview-California Waste Stream Profiles," California Integrated Waste Management Board, 2001 web site.
 - "Jurisdiction Waste Diversion Program and Diversion Rate Summary," Planning Annual Report Information System, California Integrated Waste Management Board, 2001 web site.
 - "Statewide Occurrence of Operating Diversion Programs," Planning Annual Report Information System, California Integrated Waste Management Board, 2001 web site.
 - "Waste Stream Information Profiles," California Integrated Waste Management Board, 2001 web site.
- California Department of Finance reports:
 - "California Cities Ranked by January 1, 2001-Total Population," Demographics Research Unit, California Department of Finance, 2001 web site.
 - "California County Profiles," Demographics Research Unit, California Department of Finance, 2001 web site.
 - "City/County Population and Housing Estimates 2000 and 2001," Demographics Research Unit, California Department of Finance, 2001 web site.
 - "County Population Projections with Age, Sex and Race/Ethnic Detail," July 1, 1990-2040, Demographics Research Unit, California Department of Finance, 2001 web site.

- "Historical County, and State Population Estimates, 1991-2000, with 1990 Census Counts," Demographics Research Unit, California Department of Finance, 2001 web site.
- "Population and Housing Characteristics Profiles," Demographics Research Unit, California Department of Finance, 2001 web site.
- California Employment Development Department reports:
 - "Labor Force and Employment by County, Labor Market Information, California Employment Development Department, January 2001, 2001 web site.
 - "Per Capita Personal Income by County, Labor Market Information, California Employment Development Department, 2001 web site.
 - Taxable Sales for California and Counties, Labor Market Information, California Employment Development Department, 2001 web site.
- California Legislature:
 - Assembly Bill No. 939, State of California.
 - Senate Bill No. 1066, State of California.
 - Senate Bill No. 1322, State of California.
- Privately published sources:
 - "2001 State Profile: California," Woods & Poole Economics, 2001, Washington, D.C.
 - Gaquin, Deirdre A, and Katherine A. DeBrandt, "2001 County and City Extra: Annual Metro, City, and County Data Book," 1999, Landham, MD: Bernan Press.
 - "The Sourcebook of Zip Code Demographics," CACI Marketing Systems, 1999.

FINDINGS OF THE STUDY

The findings of this study are presented in seven sections which focus on the issues identified in the Introduction: Jurisdiction Geographic and Demographic Characteristics, Selected Characteristics of Jurisdictions with Higher Diversion Rates, Comparison of Waste Stream Characteristics Based on Population Diversity, Comparison of Jurisdiction Waste Reduction Programs Based on Population Diversity, Comparison of Jurisdiction Diversion Rates Based on Population Diversity, Preliminary Jurisdiction Survey Results, and Possible Cultural Factors Affecting Waste Reduction Efforts.

Tables with statistical data for the sections are presented at the end of this report. Much of the data is based on 1999 statistics because that is the time period for which the most recent diversion rates by jurisdiction are available. Accordingly, where possible, data for that time period was examined in this analysis for purposes of review and evaluation consistency.

Jurisdiction Geographic and Demographic Characteristics

The geographic and demographic characteristics of the jurisdictions are presented in two sub-sections. The first includes selected characteristics of the broad geographic areas within which the jurisdictions are located. For San Francisco, Los Angeles, Orange, and San Francisco, the county is the broad geographic area. For the Bay Area and Greater Sacramento Area, the data is presented in aggregate form from the three primary counties comprising each of these geographic locations. The second sub-section focuses more specifically on selected population and demographic characteristics of the jurisdictions included in this study.

For reader convenience, findings in each subsection are presented in a sequence moving from the northern to the southern parts of California: San Francisco County, Bay Area, Greater Sacramento Area, Los Angeles County, and Orange County.

Geographic Area Demographic Characteristics. Characteristics of the five broad geographic areas are described below and the statistical data is presented in Table One.

San Francisco County: San Francisco County is situated on 29,890 acres, and had a population of approximately 785,000 in 1999. The population is projected to decline at a rate of 0.1% per year through 2010, when it will be nearly 782,500. Of the five geographic areas included in this study, San Francisco County was the only one in which a decline in population is expected to occur. In 1999, there were approximately 320,000 households in the county, with the average one containing 2.48 people.

Slightly over half of the population (50.3%) is female, and that is expected to remain about the same through 2010. While most of the residents of the county (64.2%) are between the ages of 20 and 64, this group will experience the most

significant decline in numbers, and will comprise 63.0% of the county's population in 2010. The only age group which will increase in size is the 65 and older, and that group is projected to grow at a rate of 0.5% per year from 1999 through 2010. At that point, this group will comprise 16.0% of the population.

The three largest population groups in terms of ethnicity are Caucasian (40.7%), Asian-American (32.9%), and Hispanic (15.9%). Combined, they account for 89.5% of San Francisco County's residents. The largest growth among ethnic groups will be Hispanic which will increase at a rate of 1.0% per year, and Asian-American with an annual growth rate of 0.3%. By 2010, Asian-Americans and Hispanics will comprise 34.9% and 18.2% of the county's population respectively. All other population groups will decline in numbers. Based on the fact that Caucasians comprise less than half of the county's population, and will account for even less by the year 2010, San Francisco County is considered to have a highly diverse population.

Total personal income in 1998 was \$33.2 billion, resulting in an average household income of \$104,887. Per capita income (i.e., income per resident of the county) was \$42,378, and the average earnings per job was \$50,716. San Francisco had the highest dollar averages on all of these income indicators other than total personal income. Population size, of course, is a critical determinant of total personal income. Accordingly, while every geographic area has pockets of higher and lower incomes, San Francisco County is considered a relatively high income area for this analysis.

In 1999, San Francisco had a civilian labor force of 435,000, and civilian employment of 422,800. Accordingly, its unemployment rate was 2.8%, which gave it the second lowest unemployment rate of the five geographic areas. The significance of this, however, is uncertain given that unemployment rates have increased from 1999 to the time of this analysis, and can fluctuate quickly.

In 1998, more than half (54.4%) of all non-government businesses were in the service industry, 18.0% were retail and wholesale, and 14.3% were finance/real estate/insurance. Together, these three industries comprised 86.7% of all non-government businesses in the county. San Francisco had higher percentages of businesses in the service and finance/real estate/insurance industries than was found in the other geographic areas included in this study. Taxable sales for all industries in 1999 totaled \$12.3 billion, which was the lowest of the five geographic areas.

Bay Area: As previously indicated, the Bay Area was defined for purposes of this analysis to consist of Alameda, Contra Costa, and Santa Clara counties which cover 1.76 million acres. The population of these three counties was approximately 4.1 million in 1999, and is projected to grow at a rate of 1.2% per year through 2010 to a population of 4.7 million. Of the five geographic areas included in this study, the Bay Area has the second fastest growth rate in

population. In 1999, there were approximately 1.45 million households, with the average one containing 2.86 people.

Slightly more than half of the population (50.1%) is male, and that is expected to remain about the same through 2010. Most of the residents of the county (61.2%) are between the ages of 20 and 64. However, both this and the under 20 age group will grow at slower rates than the overall average. The result will be that those under 20 will represent 27.6% of the population in 2010 versus 28.4% in 1999, and those 20 to 64 will comprise 60.3% in 2010. The fastest growing age category is 65 and older. It will increase at a rate of 2.7% per year, and will comprise 12.0% of the population in 2010 compared to 10.3% in 1999.

The three largest population groups in terms of ethnicity are Caucasian (50.9%), Asian-American (19.5%), and Hispanic (19.5%). Combined, they account for 89.8% of the Bay Area's residents. The largest growth among ethnic groups will be Asian-American which will increase at a rate of 3.6% per year, and Hispanic with an annual growth rate of 2.5%. By 2010, Asian-Americans and Hispanics will comprise 25.3% and 22.4% of the Bay Area's population respectively. The Caucasian population will decline at a rate of 0.4% per year, resulting in it comprising 42.5% of the population in 2010. Based on the fact that Caucasians will comprise less than half of the Bay Area's population by the year 2010, it is considered to have a highly diverse population.

Total personal income in 1998 was \$145.0 billion, resulting in an average household income of \$99,682. Per capita income (i.e., income per resident of the county) was \$34,805, and the average earnings per job was \$46,272. The Bay Area had the second highest dollar averages on all of these income indicators other than total personal income. Population size, of course, is a critical determinant of total personal income. Accordingly, while every geographic area has pockets of higher and lower incomes, the Bay Area is considered a relatively high income area for this analysis.

In 1999, the Bay Area had a civilian labor force of 2.25 million, and civilian employment of 2.19 million. Accordingly, its unemployment rate was 2.5%, which made it the lowest of the five areas in terms of unemployment. The significance of this, however, is uncertain given that unemployment rates have increased from 1999 to the time of this analysis, and can fluctuate quickly.

In 1998, just over half (50.8%) of all non-government businesses were in the service industry, 20.0% were retail and wholesale, and 10.1% were finance/real estate/insurance. Together, these three industries comprised 80.9% of all non-government businesses in the three counties. The Bay Area had a higher percentage of business involved in manufacturing than was found in any of the northern geographic areas, but less than in Los Angeles and Orange counties. Taxable sales for all industries in 1999 totaled \$56.8 billion, which was the second highest of the geographic areas.

Greater Sacramento Area: The Greater Sacramento Area consists of El Dorado, Placer, and Sacramento counties, and covers 2.6 million acres. The population of these three counties was approximately 1.6 million in 1999 and is projected to grow at a rate of 2.0% per year through 2010 to a population of 2.0 million. Of the five geographic areas included in this study, the Greater Sacramento Area has the fastest growth rate in population. In 1999, there were approximately 605,000 households, with the average one containing 2.68 people. This is the second lowest of the five geographic areas in terms of population per household.

Slightly more than half of the population (50.7%) is female, and that is expected to remain about the same through 2010. Most of the residents of the county (58.6%) are between the ages of 20 and 64, and this age group is projected to grow at about the same rate as the overall geographic area. The fastest growth rate will be in the 65 and older group. It will increase at a rate of 2.5% per year and comprise 12.0% of the population by 2010, compared to 11.4% in 1999. The under 20 age group will grow at a slightly slower rate than the overall average, and will represent 29.1% of the population in 2010 versus 30.1% in 1999.

The three largest population groups in terms of ethnicity are Caucasian (70.1%), Hispanic (12.0%), and Asian-American (9.2%). Combined, they account for 91.3% of the Greater Sacramento Area's residents. The largest growth among ethnic groups will be Asian-American which will increase at a rate of 4.4% per year, and Hispanic with an annual growth rate of 3.2%. By 2010, Hispanics and Asian-Americans will comprise 13.6% and 11.9% of the Greater Sacramento Area's population respectively. The Caucasian population will grow at a much slower rate than any of the ethnic populations, resulting in it comprising 65.4% of the population in 2010. However, based on the fact that Caucasians will still comprise well over half of the Greater Sacramento Area's population by the year 2010, this geographic area is considered to have a relatively low diverse population compared to the other geographic areas included in this study.

Total personal income in 1998 was \$42.3 billion, resulting in an average household income of \$70,135. Per capita income (i.e., income per resident of the county) was \$26,136, and the average earnings per job was \$34,121. The Greater Sacramento Area had the lowest average household income and average earnings per job of the five geographic areas included in this study. It also was second lowest in terms of per capital income. Population size, of course, is a critical determinant of total personal income. Accordingly, while every geographic area has pockets of higher and lower incomes, the Greater Sacramento Area is considered a moderate income area for this analysis.

In 1999, the Greater Sacramento Area had a civilian labor force of 812,600 people, and civilian employment of 779,700. Accordingly, its unemployment rate was 4.0%, which made it the second highest of the five areas in terms of unemployment. The significance of this, however, is uncertain given that

unemployment rates have increased from 1999 to the time of this analysis, and can fluctuate quickly.

In 1998, just over half (50.9%) of all non-government businesses were in the service industry, 18.8% were retail and wholesale, and 11.8% were construction/mining/utilities. Together, these three industries comprised 81.5% of all non-government businesses in the three counties. The Greater Sacramento Area had a higher percentage of businesses involved in construction/mining/utilities than was found in any of the other geographic areas included in this study. Taxable sales for all industries in 1999 totaled \$17.8 billion, which was the second lowest of the geographic areas.

Los Angeles County: Los Angeles County is situated on 2.6 million acres, and had a population of approximately 9.7 million in 1999. The population is projected to grow at a rate of 0.8% per year through 2010 to 10.6 million. Aside from San Francisco County's declining population, this growth rate is the lowest of any of the other four geographic areas included in the study. However, because of its size, the increase in numbers of people is still highly significant. In 1999, there were approximately 3.1 million households, with the average one containing 3.14 people. This is the highest of the five geographic areas in terms of population per household.

Slightly more than half of the population (50.1%) is male, and that is expected to remain about the same through 2010. Most of the residents of the county (58.7%) are between the ages of 20 and 64, and this age group is projected to grow at a slightly lower rate than the overall geographic area. This will result in its comprising 57.7% of the population in 2010. The fastest growth rate will be in the 65 and older group. It will increase at a rate of 1.7% per year and comprise 10.5% of the population by 2010, compared to 9.6% in 1999. The under 20 age group also will grow at about the same rate as the overall average and continue to comprise 31.7% of the population in 2010.

The three largest population groups in terms of ethnicity are Hispanic (44.7%), Caucasian (32.9%), and Asian-American (12.3%). Combined, they account for 89.9% of Los Angeles County's residents. The largest growth among ethnic groups will be Hispanic which will increase at a rate of 1.9% per year, and Asian-American with an annual growth rate of 1.6%. By 2010, Hispanics and Asian-Americans will comprise 55.0% and 14.8% of Los Angeles County's population respectively. The Caucasian population will decline at a rate of 1.1% per year, resulting in it comprising 28.8% of the population in 2010. Based on the fact that Caucasians comprise less than one-third of the population of Los Angeles County and will represent even less in the year 2010, this geographic area is considered to have a highly diverse population, and the most diverse in this study.

Total personal income in 1998 was \$246.9 billion, resulting in an average household income of \$80,880. Per capita income (i.e., income per resident of the

county) was \$25,758, and the average earnings per job was \$37,804. Los Angeles County had the lowest per capita income of the five geographic areas included in the study, and second lowest average household income. Population size, of course, is a critical determinant of total personal income. Accordingly, while every geographic area has pockets of higher and lower incomes, Los Angeles County is considered a moderate income area for this analysis.

In 1999, Los Angeles County had a civilian labor force of 4.76 million people, and civilian employment of 4.51 million. Accordingly, its unemployment rate was 5.4%, which made it the highest of the five areas in terms unemployment. The significance of this, however, is uncertain given that unemployment rates have increased from 1999 to the time of this analysis, and can fluctuate quickly.

In 1998, services was the single largest industry (48.2%) of all non-government businesses, with retail and wholesale being second (22.4%) and finance/real estate/insurance being third (9.8%). Together, these three industries comprised 80.4% of all non-government businesses in the county. Los Angeles County had a higher percentage of businesses involved in retail and wholesale than was found in any of the other geographic areas included in this study. Taxable sales for all industries in 1999 totaled \$90.2 billion, which was the highest of the geographic areas.

Orange County: Orange County is situated on 505,400 acres, and had a population of approximately 2.8 million in 1999. The population is projected to grow at a rate of 1.1% per year through 2010 to a population of 3.2 million. In 1999, there were approximately 925,000 households, with the average one containing 3.06 people. This is the second highest of the five geographic areas in terms of population per household.

More than half of the population (50.6%) is male, and that is expected to remain about the same through 2010. Most of the residents of the county (59.96%) are between the ages of 20 and 64, and this age group is projected to grow at a slower rate than the overall geographic area. This will result in its comprising 57.5% of the population in 2010. The fastest growth rate will be in the 65 and older group. It will increase at a rate of 2.6% per year and comprise 11.0% of the population by 2010, compared to 9.5% in 1999. The under 20 age group also will grow at a slighter faster rate than the overall average, and will represent 31.4% of the population in 2010 versus 30.6% in 1999.

The three largest population groups in terms of ethnicity are Caucasian (55.9%), Hispanic (29.2%), and Asian-American (12.8%). Combined, they account for 97.9% of Orange County's residents. The largest growth among ethnic groups will be Asian-American which will increase at a rate of 3.4% per year, and Hispanic with an annual growth rate of 2.5%. By 2010, Hispanics and Asian-Americans will comprise 34.1% and 16.5% of Orange County's population respectively. The Caucasian population will decline at a rate of 0.4% per year,

resulting in it comprising 47.5% of the population in 2010. Based on the fact that Caucasians will comprise less than half of the population of Orange County in 2010, this geographic area is considered to have a moderately diverse population when compared to the other geographic areas included in this study.

Total personal income in 1998 was \$88.6 billion, resulting in an average household income of \$99,282. Per capita income (i.e., income per resident of the county) was \$32,413, and the average earnings per job was \$37,420. Orange County had the third highest average household income and per capita income of the five geographic areas included in the study, and second lowest average earnings per job. Population size, of course, is a critical determinant of total personal income. Accordingly, while every geographic area has pockets of higher and lower incomes, Orange County is considered a moderate to somewhat higher income area for this analysis.

In 1999, Orange County had a civilian labor force of 1.51 million people, and civilian employment of 1.47 million. Accordingly, its unemployment rate was 2.5%, which made it the second lowest of the five areas in terms of unemployment. The significance of this, however, is uncertain given that unemployment rates have increased from 1999 to the time of this analysis, and can fluctuate quickly.

In 1998, services was the single largest industry (47.9%) of all non-government businesses, with retail and wholesale being second (21.7%) and finance/real estate/insurance being third (11.5%). Together, these three industries comprised 81.1% of all non-government businesses in the county. Orange County had the second highest percentage of businesses involved in retail and wholesale when compared to the other geographic areas included in this study. Taxable sales for all industries in 1999 totaled \$37.1 billion, which was the third highest of the geographic areas.

Jurisdiction Demographic Characteristics. As indicated in the Methodology for this study, specific jurisdictions were identified for analysis purposes. Within each of the five geographic areas, the three jurisdictions with the highest diversion rates, the lowest diversion rates, and the largest populations were included in the study. Described below are selected demographic characteristics of those jurisdictions, and more detailed data is presented in Table Two. Ethnic percentages do not total 100% because of the manner in which they are reported by the source documents.

San Francisco County: There is only one jurisdiction within the county, so its demographic characteristics are the same as those of the county. Selected characteristics include:

Diversion Rate	32
Male	52.65%
Female	47.35%
0 to 19	18.70%
20 to 64	66.46%
65 or older	14.84%
Caucasian	47.27%
Hispanic	13.89%
Asian-American	35.35%
African-American	11.38%

Bay Area: There are 47 jurisdictions within the three counties defined for this study as the Bay Area. The diversion rates range from a high of 68 (Pittsburg) to a low of -110 (Brentwood), with the weighted average based on population being 43.01. Selected characteristics of jurisdictions with the highest and lowest diversion rates, and with the largest populations are:

Highest Diversion Rates:

- Pittsburg:

Diversion Rate	68
Male	49.62%
Female	50.38%
0 to 19	36.00%
20 to 64	55.10%
65 or older	8.90%
Caucasian	54.40%
Hispanic	29.00%
Asian-American	15.30%
African-American	16.40%

- Alameda-Unincorporated

Diversion Rate	64
Male	n.a.
Female	n.a.

0 to 19	n.a.
20 to 64	n.a.
65 or older	n.a.

Caucasian	n.a.
Hispanic	n.a.
Asian-American	n.a.
African-American	n.a.

- Monte Sereno:

Diversion Rate	63
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Male	47.70%
Female	52.30%

0 to 19	20.60%
20 to 64	65.20%
65 or older	14.20%

Caucasian	88.70%
Hispanic	7.40%
Asian-American	8.30%
African-American	0.60%

Lowest Diversion Rates:

- Brentwood

Diversion Rate	-110
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Male	50.37%
Female	49.63%

0 to 19	35.10%
20 to 64	54.80%
65 or older	10.10%

Caucasian	79.80%
Hispanic	38.50%
Asian-American	2.40%
African-American	0.90%

- Emeryville

Diversion Rate	16
Male	47.37%
Female	52.63%
0 to 19	26.00%
20 to 64	59.60%
65 or older	14.40%
Caucasian	18.40%
Hispanic	8.70%
Asian-American	11.10%
African-American	65.20%

- Clayton

Diversion Rate	17
Male	51.08%
Female	48.92%
0 to 19	31.50%
20 to 64	63.00%
65 or older	5.50%
Caucasian	87.10%
Hispanic	8.40%
Asian-American	7.60%
African-American	2.60%

Largest Populations:

- San Jose

Diversion Rate	46
Male	49.82%
Female	50.18%
0 to 19	30.30%
20 to 64	60.37%
65 or older	9.33%

Caucasian	58.78%
Hispanic	31.20%
Asian-American	22.29%
African-American	4.40%

- Oakland

Diversion Rate	33
Male	48.18%
Female	51.82%
0 to 19	30.30%
20 to 64	56.90%
65 or older	12.80%
Caucasian	29.50%
Hispanic	14.48%
Asian-American	18.66%
African-American	42.62%

- Fremont

Diversion Rate	48
Male	50.59%
Female	49.41%
0 to 19	32.20%
20 to 64	63.10%
65 or older	4.70%
Caucasian	39.80%
Hispanic	14.20%
Asian-American	46.80%
African-American	5.70%

Greater Sacramento Area: There are 16 jurisdictions within the three counties defined for this study as the Greater Sacramento Area. The diversion rates range from a high of 64 (Galt) to a low of 16 (Roseville), with the weighted average based on population being 35.82. Selected characteristics of jurisdictions with the highest and lowest diversion rates, and with the largest populations are:

Highest Diversion Rates:

- Galt:

Diversion Rate	64
Male	50.27%
Female	49.73%
0 to 19	33.50%
20 to 64	54.00%
65 or older	12.50%
Caucasian	85.10%
Hispanic	30.00%
Asian-American	3.30%
African-American	1.00%

- Colfax:

Diversion Rate	50
Male	49.80%
Female	50.20%
0 to 19	28.90%
20 to 64	56.00%
65 or older	15.10%
Caucasian	96.30%
Hispanic	7.00%
Asian-American	0.90%
African-American	0.50%

- Placerville:

Diversion Rate	49
Male	48.74%
Female	51.26%
0 to 19	28.30%
20 to 64	53.70%
65 or older	18.00%

Caucasian	94.80%
Hispanic	8.10%
Asian-American	1.30%
African-American	0.30%

Lowest Diversion Rates:

- Roseville:

Diversion Rate	16
Male	48.56%
Female	51.44%
0 to 19	31.20%
20 to 64	57.30%
65 or older	11.50%
Caucasian	88.97%
Hispanic	14.17%
Asian-American	5.03%
African-American	0.90%

- Sacramento County/Citrus Heights:

Diversion Rate	31
Male	48.05%
Female	51.95%
0 to 19	30.70%
20 to 64	57.90%
65 or older	11.40%
Caucasian	88.00%
Hispanic	11.00%
Asian-American	4.40%
African-American	2.70%

- Rocklin:

Diversion Rate	33
Male	49.96%
Female	50.04%

0 to 19	33.20%
20 to 64	58.65%
65 or older	8.15%

Caucasian	91.25%
Hispanic	10.15%
Asian-American	4.30%
African-American	0.90%

Largest Populations:

- Sacramento:

Diversion Rate	41
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Male	48.43%
Female	51.57%

0 to 19	32.03%
20 to 64	56.03%
65 or older	11.94%

Caucasian	70.51%
Hispanic	19.34%
Asian-American	14.05%
African-American	10.95%

- Folsom:

Diversion Rate	37
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Male	56.60%
Female	43.40%

0 to 19	25.80%
20 to 64	64.30%
65 or older	9.90%

Caucasian	83.20%
Hispanic	12.80%
Asian-American	6.00%
African-American	7.30%

- Sacramento County/Citrus Heights:

Shown as a jurisdiction with one of the lowest diversion rates.

Los Angeles County: There are 89 jurisdictions within the county. The diversion rates range from a high of 78 (Avalon) to a low of -129 (Pico Rivera), with the weighted average based on population being 41.88 with the city of Los Angeles included in the analysis. The weighted average diversion rate is 9.87 when the city of Los Angeles is not included. Selected characteristics of jurisdictions with the highest and lowest diversion rates, and with the largest populations are:

Highest Diversion Rates:

- Avalon:

Diversion Rate	78
Male	53.21%
Female	46.79%
0 to 19	27.90%
20 to 64	60.80%
65 or older	11.30%
Caucasian	96.40%
Hispanic	51.00%
Asian-American	1.60%
African-American	1.00%

- Bradbury:

Diversion Rate	74
Male	48.45%
Female	51.55%
0 to 19	33.00%
20 to 64	54.90%
65 or older	12.10%
Caucasian	50.40%
Hispanic	47.10%
Asian-American	13.20%
African-American	10.60%

- El Segundo:

Diversion Rate	73
Male	50.42%
Female	49.58%
0 to 19	12.60%
20 to 64	77.60%
65 or older	9.80%
Caucasian	85.00%
Hispanic	15.70%
Asian-American	0.80%
African-American	0.13%

Lowest Diversion Rates:

- Pico Rivera:

Diversion Rate	-129
Male	49.57%
Female	50.43%
0 to 19	35.20%
20 to 64	54.90%
65 or older	9.90%
Caucasian	55.20%
Hispanic	89.30%
Asian-American	3.10%
African-American	0.60%

- San Gabriel:

Diversion Rate	-89
Male	48.35%
Female	51.65%
0 to 19	27.15%
20 to 64	58.75%
65 or older	14.10%

Caucasian	47.50%
Hispanic	36.70%
Asian-American	33.10%
African-American	1.35%

- Gardina:

Diversion Rate	-82
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Male	49.82%
Female	50.18%

0 to 19	28.50%
20 to 64	61.23%
65 or older	10.27%

Caucasian	28.43%
Hispanic	32.13%
Asian-American	33.63%
African-American	20.30%

Largest Populations:

- Los Angeles:

Diversion Rate	49
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Male	52.22%
Female	47.78%

0 to 19	48.03%
20 to 64	41.01%
65 or older	10.96%

Caucasian	41.08%
Hispanic	47.61%
Asian-American	11.33%
African-American	18.87%

- Long Beach:

Diversion Rate	31
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Male	49.36%
Female	50.64%

0 to 19	29.36%
20 to 64	60.15%
65 or older	10.48%

Caucasian	57.70%
Hispanic	26.46%
Asian-American	15.52%
African-American	11.62%

- Glendale:

Diversion Rate	47
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Male	48.14%
Female	51.86%

0 to 19	24.74%
20 to 64	60.91%
65 or older	14.35%

Caucasian	64.46%
Hispanic	29.76%
Asian-American	17.25%
African-American	1.20%

Orange County: There are 34 jurisdictions within the county. The diversion rates range from a high of 68 (Lake Forest) to a low of 18 (Orange-Unincorporated), with the weighted average based on population being 49.23. Selected characteristics of jurisdictions with the highest and lowest diversion rates, and with the largest populations are:

Highest Diversion Rates:

- Lake Forest:

Diversion Rate	68
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Male	49.39%
Female	50.61%

0 to 19	31.70%
20 to 64	61.30%
65 or older	7.00%

Caucasian	79.80%
Hispanic	16.20%
Asian-American	13.10%
African-American	1.90%

- Villa Park:

Diversion Rate	67
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Male	50.20%
Female	49.80%

0 to 19	28.00%
20 to 64	64.80%
65 or older	7.20%

Caucasian	82.30%
Hispanic	8.70%
Asian-American	15.30%
African-American	0.50%

- Huntington Beach:

Diversion Rate	66
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Male	50.24%
Female	49.76%

0 to 19	25.23%
20 to 64	65.75%
65 or older	9.03%

Caucasian	81.58%
Hispanic	16.75%
Asian-American	11.13%
African-American	0.93%

Lowest Diversion Rates:

- Orange-Unincorporated:

Diversion Rate	18
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Male	n.a.
Female	n.a.

0 to 19	n.a.
20 to 64	n.a.
65 or older	n.a.

Caucasian	n.a.
Hispanic	n.a.
Asian-American	n.a.
African-American	n.a.

- Laguna Hills:

Diversion Rate	22
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Male	44.04%
Female	55.96%

0 to 19	19.50%
20 to 64	40.50%
65 or older	40.00%

Caucasian	86.70%
Hispanic	10.60%
Asian-American	9.30%
African-American	1.10%

- Los Alamitos:

Diversion Rate	32
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Male	48.00%
Female	52.00%

0 to 19	26.00%
20 to 64	59.30%
65 or older	14.70%

Caucasian	84.70%
Hispanic	14.30%
Asian-American	8.70%
African-American	1.80%

Largest Populations:

- Santa Ana:

Diversion Rate	56
Male	52.22%
Female	47.78%
0 to 19	38.48%
20 to 64	55.90%
65 or older	5.62%
Caucasian	68.43%
Hispanic	64.48%
Asian-American	9.70%
African-American	2.08%

- Anaheim:

Diversion Rate	50
Male	50.33%
Female	49.67%
0 to 19	32.21%
20 to 64	59.76%
65 or older	8.03%
Caucasian	66.64%
Hispanic	36.40%
Asian-American	13.23%
African-American	2.19%

- Garden Grove:

Diversion Rate	55
Male	50.25%
Female	49.75%
0 to 19	31.34%
20 to 64	59.38%
65 or older	9.28%

Caucasian	61.52%
Hispanic	28.42%
Asian-American	25.04%
African-American	1.38%

Selected Characteristics of Jurisdictions with Higher Diversion Rates

Aside from the issues associated with population diversity, this study included a preliminary comparison of the characteristics of jurisdictions with diversion rates of 50.0 or higher (>50.0 Group) and those with diversion rates of less than 50.0 (<50.0 Group). As previously indicated, the >50.0 Group consisted of thirteen jurisdictions with rates of 50.00 or higher. The <50.0 Group consisted of twenty-one jurisdictions with rates lower than 50.00. Two jurisdictions, Alameda Unincorporated and Orange County Unincorporated, were not included because demographic characteristics of these were not available. The characteristics of the >50.0 Group and <50.0 Group are presented in Table Three.

Waste Stream Characteristics. Shown below are the household waste streams for the four main types of waste. On a pounds-per-population basis, the waste streams in the >50.0 Group was at least 57.00% higher than in the <50.0 Group. This indicates that lower household waste streams do not necessarily result in higher diversion rates.

	>50.0 Grp Average	<50.0 Grp Average	High/Low
Pounds/Population--Food	163.86	103.93	157.67%
Pounds/Popul.--Leaves/grass	85.88	54.47	157.67%
Pounds/Popul.--Rem/Comp. Org.	77.66	49.26	157.66%
Pounds/Popul.--Rem/Comp. Paper	66.02	41.52	159.03%
Pounds/Population--Total	393.42	249.17	157.89%

When the Los Angeles jurisdiction was removed from the <50.0 Group, the sizes of the waste streams of the two groups were nearly identical. This is shown below.

	>50.0 Grp Average	W/O LA <50.0 Grp Average	High/Low
Pounds/Population--Food	163.86	163.37	100.31%
Pounds/Population--Leaves/grass	85.88	85.62	100.30%
Pounds/Popul.--Rem/Comp. Org.	77.66	77.43	100.30%
Pounds/Popul.--Rem/Comp. Paper	66.02	65.11	101.41%
Pounds/Population--Total	393.42	391.51	100.49%

These findings for the four main household wastes are consistent with the statistics for total household waste disposal. Residential daily disposal based on pounds-per-resident-day, in the >50.0 Group was 17.26% higher than in the <50.0 Group (i.e., 2.65 vs. 2.26), and 15.70% higher on a pounds-per-person basis. (i.e., 1,144.60 versus 989.32).

The business waste streams of the two groups are shown below. Jurisdictions in the >50.0 Group tended to have at least 28.00% larger business waste streams, and especially remainder/corrugated cardboard, than was found in jurisdictions in the <50.0 Group. The <50.0 Group tended to have more leaves/grasses than did the >50.0 Group. Overall, this indicates that lower business waste streams do not necessarily result in higher diversion rates.

	>50.0 Grp Average	<50.0 Grp Average	High/Low
Pounds/Population--Food	177.90	138.51	128.44%
Pounds/Population--Rem/Comp.paper	117.77	91.39	128.87%
Pounds/Population--Rem/Corr.cardb.	74.73	53.37	140.01%
Pounds/Population--Leaves/grass		24.41	
Pounds/Population--Total	438.53	326.37	134.37%

When the Los Angeles jurisdiction was removed from the <50.0 Group, the differences in business waste streams changed considerably. The waste streams in the >50.0 Group tended to be at least 25.00% smaller than the <50.0 Group. The <50.0 Group tended to have more leaves/grasses than did the >50.0 Group.

	>50.0 Grp Average	W/O LA <50.0 Grp Average	High/Low
Pounds/Population--Food	177.90	236.75	75.14%
Pounds/Popul.--Rem/Comp.paper	117.77	157.50	74.77%
Pounds/Popul.--Rem/Corr.cardb.	74.73	90.96	82.15%
Pounds/Population--Leaves/grass		48.81	
Pounds/Population--Total	438.53	557.75	78.63%

Total business waste disposal was found to be 86.27% higher on a pounds-per-person basis in the >50.0 Group compared to the <50.0 Group (i.e., 1,619.60 versus 869.50). However, on a pounds-per-employee-per-day basis, business waste disposal was 57.45% lower in the >50.0 Group.

The overall implications of these findings are that lower household and/or business waste streams do not necessarily result in higher diversion rates. While there are some differences in the types of waste streams, these are primarily limited to more leaves/grasses in the <50.0 Group.

Waste Collection Programs. The waste collection programs used by the jurisdiction groups are presented in Table Three.

With respect to household materials collection, more >50.0 Group jurisdictions had residential curbside recyclable collection programs than did jurisdictions in the <50.0 Group. However, the <50.0 Group had more household diversion and residential curbside HHW collection programs than did those in the >50.0 Group. For business materials collection, more jurisdictions in the <50.0 Group had commercial on-site

recyclable pickup and commercial on-site greenwaste pickup than did those in the >50.0 Group.

These findings suggest that such household and business collection programs are not distinguishing features of jurisdictions with higher diversion rates. While the programs may help improve diversion rates from what they would have been without the programs, there is no evidence that they are "the" critical factors to achieving high diversion rates.

Waste Reduction Programs. The waste reduction programs used by the jurisdiction groups are presented in Table Three.

The most commonly used waste reduction programs by jurisdictions in the >50.0 Group (i.e., 75.00% or more using the program) were:

Composting:

- Residential curbside greenwaste collection

Facility Recovery:

- MRF

Public Education:

- Print
- Outreach
- Electronic
- Schools

Recycling:

- Commercial on-site pickup
- Residential buy-back
- Special collection season (regular)
- Residential curbside
- Residential drop-off

Source Reduction:

- Business waste reduction program
- Procurement
- Xeriscaping/grasscycling

Special Waste Materials:

- White goods
- Tires
- Concrete/asphalt/rubble

The fact that at least three in four jurisdictions in the >50.0 Group have these programs in place does not necessarily imply that the programs are key determinants that separate the

two jurisdiction groups. There are relatively few differences in the percentages of jurisdictions in the >50.0 Group which use these programs versus the percentages in the <50.0 Group. In some instances, more jurisdictions in the <50.0 Group have the programs than do those in the >50.0 Group. These include: print (Public Education), electronic (Public Education), commercial on-site pickup (Recycling), residential buy-back (Recycling), and white goods (Special Waste Materials).

To further examine what waste reduction programs are in place in the two jurisdiction groups, those programs in which substantially more jurisdictions in the >50.0 Group use them were identified. They are:

Composting:

- Residential curbside greenwaste collection
- Commercial self-haul greenwaste
- Other composting

Facility Recovery:

- Alternative daily cover

Public Education:

- Schools

Recycling:

- Residential curbside
- Commercial self-haul

Source Reduction:

- Procurement

Special Waste Materials:

- Concrete/asphalt/rubble
- Shingles

These programs may be important in distinguishing possible differences between waste reduction programs used by jurisdictions in the >50.0 Group. Some caution, however, should be used in making any assumptions about whether they are critical programs. In some instances, the use of these programs may be more related to geographic and situational factors unique to a few jurisdictions rather than being broadly needed by all. Examining this issue was beyond the scope of this study, but CIWMB may want to consider this in the future.

Overall, in comparing the average number of programs in jurisdictions within the >50.0 and <50.0 Groups, it is evident that sheer numbers are not critical. As shown below, in most waste reduction program categories, jurisdictions in the <50.0 Group have more programs in place than do jurisdictions in the >50.0 Group. The only exceptions are in Facility Recovery and Public Education.

	DIV. RATE >50.0 Average	DIV. RATE <50.0 Average	W/O LA DIV. RATE <50.0 Average
Total Number Of Programs			
<u>Composting</u>	2.85	2.81	2.65
<u>Facility Recovery</u>	3.34	2.48	2.35
<u>HHW</u>	0.00	0.00	0.00
<u>Policy Incentives</u>	1.15	1.70	1.70
<u>Public Education</u>	3.69	3.57	3.55
<u>Recycling</u>	6.23	6.40	6.40
<u>Source Reduction</u>	4.54	4.75	4.75
<u>Special Waste Materials</u>	4.31	4.65	4.65
<u>Transformation</u>	0.46	0.70	0.70
TOTAL	25.85	27.58	26.75

Grants. Finally, differences in grant funding since 1990 were examined. These findings also are presented in Table Three.

With respect to public grants, jurisdictions in the <50.0 Group tended to have more grants per jurisdiction since 1990 (i.e., 0.57 grants per jurisdiction versus 0.50), and more dollars per jurisdiction (i.e., \$90,285 versus \$83,019). However, when examined on the basis of dollars per person, jurisdictions in the >50.0 Group received \$0.94 per person versus \$0.24 per person in the <50.0 Group. Therefore, if the critical factor in public grants is how much is spent per member of the population, those in the >50.0 Group had significantly more public grant dollars available to them since 1990 than did those in the <50.0 Group.

In terms of regional grants, there were so few in the >50.0 Group that comparisons were not possible. On a dollars per person basis, those in the >50.0 Group received \$0.01, compared to \$0.21 in the <50.0 Group since 1990.

Comparison of Waste Stream Characteristics Based on Population Diversity

Two issues addressed in this study were whether jurisdictions with more diverse populations had larger or smaller waste streams, and whether their waste streams were of different compositions. Due to its size, the Los Angeles jurisdiction has a significant impact on the HPH Group's profile. Accordingly, comparisons of the HPH Group to other jurisdiction groups are presented with and without the Los Angeles jurisdiction. Data pertaining to the size and nature of the waste streams in jurisdictions with high, moderate, and low diverse populations are presented in Table Four.

Size of Waste Streams. The four largest household and business waste stream materials in terms of tonnage are presented in Table Four. Because of the varying sizes of the populations of the three jurisdictional groups (i.e., HPH, MPH, and LPH), total tonnage

was not considered a good indicator for making comparisons of the size of the groups' respective waste streams.

Accordingly, pounds-per-person was considered to be an appropriate basis for comparing the waste streams of household materials (i.e., tonnage multiplied by 2,000, and then divided by the population in the jurisdiction). Because the number of businesses in each jurisdiction for 1999 was not available, business tonnage also was divided by population size and pounds-per-person was used as the indicator for comparison purposes. It is recognized that population size is not a precise indicator of the number of businesses, but it provides a means for partially adjusting for the varying sizes of the jurisdictions.

The four main household waste streams were created by food, leaves/grass, remainder/compost organic, and remainder/compost paper. The total household waste stream from these materials, examined on a pounds-per-person basis, was 51.09% smaller in the HPH Group than in the jurisdictions comprising the LPH Group. When Los Angeles was removed from the HPH Group, the household waste stream was nearly identical (i.e., 0.18% higher) to the LPH Group. The MPH Group had a total household waste stream that was 3.99% smaller than the LPH Group.

These findings for the main household waste streams generally are consistent with the total household waste stream. On a pounds-per-person basis, the total household waste disposal in 1999 was 46.29% smaller in the HPH Group than in the LPH Group. Without Los Angeles, however, the HPH Group had 38.63% more total household waste disposal than did the LPH Group. The MPH Group had total household waste streams that were 21.10% lower than those of LPH Group.

Based on these findings, the jurisdiction groups with higher percentage Hispanic populations have somewhat to substantially smaller household waste streams than do those in which the Hispanic population is lower. The Los Angeles jurisdiction's household waste stream, in terms of pounds-per-person, is a significant factor in causing the HPH Group to have a smaller stream.

The main types of business waste streams varied somewhat among jurisdictions, but the most common were food, remainder/composite paper, and remainder/corrugated cardboard. Using pounds-per-person as the indicator for business waste streams, the HPH Group had waste streams that were 69.78% lower than those in the LPH Group. When Los Angeles was removed from the HPH Group, the business waste stream was 33.78% lower than in LPH Group. Finally, jurisdictions with a moderate percentage of Hispanics had business waste streams that were 35.17% lower when compared to jurisdictions with a lower percentage of Hispanics.

The total business waste stream in the HPH Group was 55.75% lower than in the LPH Group. However, without Los Angeles, the HPH Group had a 6.65% larger business waste stream. The MPH Group had a 4.12% smaller business waste stream than did the LPH Group.

Based on these statistics, jurisdiction groups with higher percentage Hispanic populations have significantly lower business waste streams, as measured on a pounds-per-person basis, than do those with lower percentages of Hispanics. This was found for both the main materials as well as the total. As with household waste disposal, however, the waste stream in Los Angeles was a major factor causing the HPH Group to have a smaller business waste stream.

Type of Waste Streams. The main types of waste generated by jurisdictions also are shown in Table Four. As previously indicated, the main household waste streams were created by food, leaves/grass, remainder/compost organic, and remainder/compost paper. These were the only waste streams available for analysis.

Comparisons of the total volumes of individual streams show that the HPH Group has approximately half the waste stream of the LPH Group for each of these household materials. Accordingly, the household waste streams do not appear to differ other than they are smaller in the HPH Group. These streams are shown below:

	HPH	LPH	HPH/LPH
Pounds/Population—Food	82.62	165.13	50.03%
Pounds/Population--Leaves/grass	43.30	86.54	50.03%
Pounds/Population--Rem/Comp. Org.	39.16	78.26	50.03%
Pounds/Population--Rem/Comp. Paper	32.80	66.54	49.29%

The main household wastes in HPH Group without Los Angeles were essentially the same as those of the LPH Group. The slightly lower (1.74%) waste stream of remainder/composite paper was not considered significant. These streams are shown below:

	HPH w/o LA	LPH	HPH/LPH
Pounds/Population—Food	166.18	165.13	100.64%
Pounds/Population—Leaves/grass	87.09	86.54	100.64%
Pounds/Population—Rem/Comp. Org.	78.76	78.26	100.64%
Pounds/Population—Rem/Comp. Paper	65.38	66.54	98.26%

Similar findings were apparent in comparing the household waste streams of the MPH Group with those of the LPH Group. Although the overall volume was approximately 4.00% less, this difference was consistent across all materials. These streams are shown below:

	MPH	LPH	MPH/LPH
Pounds/Population—Food	158.55	165.13	96.02%
Pounds/Population--Leaves/grass	83.09	86.54	96.01%
Pounds/Population--Rem/Comp. Org.	75.14	78.26	96.00%
Pounds/Population--Rem/Comp. Paper	63.88	66.54	96.01%

The implication of these analyses is that there is no apparent difference in the nature of the household waste streams between jurisdictions with higher or lower percentages of Hispanics in their populations. This finding must be used with caution because only the main four materials were included in the analysis. However, these materials accounted for 48.10% of all household wastes, and possible differences in the nature of the waste streams for other materials are likely to be of lesser overall significance due to their individually being smaller volumes.

There were differences in the types of business waste streams between HPH and LPH Groups. As in the case of household waste streams, this analysis focused only on the four main business materials.

Individual waste material streams were compared by dividing the average for the HPH Group by the average for the LPH Group. While each waste stream in the HPH Group was smaller, it was even lower for food and remainder/composite paper waste streams than for remainder/corrugated cardboard stream. In addition, the HPH Group reported lumber as the fourth largest business waste stream, while leaves/grass was the fourth highest stream in the LPH Group. These waste streams are shown below:

	HPH	LPH	HPH/LPH
Pounds/Population--Food	83.68	296.07	28.26%
Pounds/Population--Rem/Comp.paper	57.44	193.99	29.61%
Pounds/Population--Rem/Corr.cardb.	35.93	112.01	32.17%
Pounds/Population--Lumber	30.51	0.00	

When Los Angeles was removed from the HPH Group, the findings were the same with respect to individual business waste streams. While each waste stream in the HPH Group without Los Angeles was smaller, it was even lower for food and remainder/composite paper, higher for remainder/corrugated cardboard, and higher for lumber. These streams are shown below:

	HPH w/o LA	LPH	HPH/LPH
Pounds/Population--Food	178.85	296.07	60.41%
Pounds/Population--Rem/Comp.paper	127.94	193.99	65.95%
Pounds/Population--Rem/Corr.cardb.	80.08	112.01	71.49%
Pounds/Population--Lumber	30.51	0.00	

Results of the comparisons of the business waste streams between the MPH Group and the LPH Group were somewhat different. While the MPH Group's overall volume also was smaller, the food waste stream was not as low as were the other waste streams. These waste streams are shown below:

	MPH	LPH	MPH/LPH
Pounds/Population--Food	196.19	296.07	66.27%
Pounds/Population--Rem/Comp.paper	123.02	193.99	63.42%
Pounds/Population--Rem/Corr.cardb.	68.78	112.01	61.40%
Pounds/Population--Leaves/grass	42.73	72.55	58.90%

Based on this data, relatively small differences exist in the business waste streams of the three jurisdiction groups. Among the common materials, the HPH Group had somewhat lower food waste streams than either the MPH or LPH Groups, and higher streams of remainder/corrugated cardboard and lumber. Lumber, however, may be a geographic rather than a demographic/cultural difference.

This analysis focused on the four main business materials in each jurisdiction. It is not possible to determine what percent of the total business waste stream these materials represent because the types vary between jurisdictions. However, from a review of the jurisdiction data, it appears that the main four account for at least 40% of the total waste stream.

Overall Conclusions Relative to the Size and Types of Waste Streams. Jurisdictions in which at least 31.00% of their populations are Hispanic (i.e., HPH Group) have smaller household and business waste streams than do jurisdictions in which less than 31.00% of their populations are Hispanic (i.e., MPH and LPH Groups). When the Los Angeles jurisdiction was removed from the HPH Group, the sizes of the waste streams of the three jurisdiction groups were similar.

The relatively small household and business waste streams in the Los Angeles jurisdiction, as measured on a pounds-per-person basis, contributed substantially to the finding that the HPH Group had smaller waste streams than the other groups. However, this one jurisdiction accounts for a very significant part of California's population overall and for the Hispanic population, and cannot be ignored.

With respect to the types of waste being generated, no significant differences were found between the jurisdiction groups for the main four household materials. Relatively minor differences were found in the type of business waste streams between the HPH Group and the LPH Group. The HPH Group had somewhat lower business waste streams for food and remainder/composite paper, and higher for remainder/corrugated cardboard and lumber.

One of the difficulties in making this assessment was the lack of data on more than just the four main waste materials and their contributions to the jurisdictions' waste streams. The main four accounted for at least 40% of the total waste streams, and the remaining materials individually contribute less than 10% to the total. However, some of the other materials could collectively represent significant amounts of the household and/or business waste streams. In monitoring volumes and types of waste, it would be useful to report all materials that contribute at least 5% to either the household or business waste stream.

Another difficulty in evaluating business waste streams was the lack of data concerning the number of businesses and/or employees in each jurisdiction for the reporting year. "Pounds-per-business" or "pounds-per-employee" would be a better common denominator for assessing differences between jurisdictions with respect to their business waste. Some of this data may be available from other State agencies (e.g., the Employment Development Department's Labor Market Information Division).

Finally, two important issues that should be examined in future comparisons of jurisdictions are whether certain types of waste have more adverse environmental impacts than others, and whether certain types are more difficult to reduce and/or dispose of than others. These were not especially critical issues in this analysis because few differences in the waste streams were found among jurisdiction groups for the materials examined. However, that may not be the case in subsequent studies.

Comparison of Jurisdiction Waste Reduction Programs Based on Population Diversity

Two critical issues in this study are whether jurisdictions with more diverse populations have a greater or lesser number of waste reduction programs than less diverse jurisdictions, and whether there are differences in the programs used by the jurisdictions. Table Five contains the percentages of jurisdiction within each of the three groups which have particular waste reduction programs.

Number of Waste Reduction Programs. Comparisons were made of the three jurisdiction groups in terms of the number of waste reduction programs they have in place. For each program category (e.g., "composting"), the total number of programs offered by all of the jurisdictions in the group were added and then divided by the number of jurisdictions in the group. This provided the average number of programs a jurisdiction within that jurisdiction group offered in that category. For example, the ten jurisdictions comprising the HPH Group had a total of 34 programs in the composting category. Therefore, the average jurisdiction within the group had 3.4 composting programs.

The average number of waste reduction programs by the HPH and LPH Groups are presented below:

	HISPANIC HPH Group Average	HISPANIC LPH Group Average
Total Number Of Programs		
<i>Composting</i>	3.40	2.60
<i>Facility Recovery</i>	2.80	2.27
<i>HHW</i>	0.00	0.00
<i>Policy Incentives</i>	1.30	1.87
<i>Public Education</i>	2.90	3.80
<i>Recycling</i>	5.70	6.60
<i>Source Reduction</i>	4.40	4.60

	HISPANIC HPH Group Average	HISPANIC LPH Group Average
<i>Special Waste Materials</i>	4.20	4.73
<i>Transformation</i>	0.50	0.73
TOTAL	25.20	27.20

On the average, the HPH Group had more composting and facility recovery programs than did jurisdictions in the LPH Group. However, it had fewer policy incentives, public education, recycling, special waste materials, and transformation programs. The number of source reduction programs was about the same.

When the Los Angeles jurisdiction was removed from the HPH Group, the findings are nearly the same. The HPH Group had more composting and facility recovery programs, and fewer other programs. The average number of waste reduction programs per jurisdiction within each group are shown below:

	W/O LA HISPANIC HPH Group Average	HISPANIC LPH Group Average
Total Number Of Programs		
<i>Composting</i>	3.11	2.60
<i>Facility Recovery</i>	2.56	2.27
<i>HHW</i>	0.00	0.00
<i>Policy Incentives</i>	1.11	1.87
<i>Public Education</i>	2.78	3.80
<i>Recycling</i>	5.56	6.60
<i>Source Reduction</i>	4.11	4.60
<i>Special Waste Materials</i>	3.89	4.73
<i>Transformation</i>	0.44	0.73
TOTAL	23.56	27.20

Comparisons of the MPH Group with the LPH Group show that the former has more facility recovery, public education, and source reduction programs. The LPH Group has more policy incentives and transformation programs. The two jurisdiction groups have about the same number of other waste reduction programs.

	HISPANIC MPH Group AVERAGE	HISPANIC LPH Group AVERAGE
Total Number Of Programs		
<i>Composting</i>	2.56	2.60
<i>Facility Recovery</i>	2.56	2.27
<i>HHW</i>	0.00	0.00
<i>Policy Incentives</i>	1.22	1.87

	HISPANIC MPH Group AVERAGE	HISPANIC LPH Group AVERAGE
<i>Public Education</i>	4.11	3.80
<i>Recycling</i>	6.67	6.60
<i>Source Reduction</i>	5.33	4.60
<i>Special Waste Materials</i>	4.78	4.73
<i>Transformation</i>	0.56	0.73
TOTAL	27.89	27.20

Based on these analyses, jurisdictions in the LPH Group have more waste reduction programs than do those with larger Hispanic populations. The only exceptions were in the composting and facility recovery program categories.

Type of Waste Reduction Programs. The percentage of jurisdictions within each jurisdiction group which had individual waste reduction programs also is presented in Table Five.

Differences between the HPH and LPH Groups in terms of their individual waste reduction programs are presented below. The percentages highlighted in gray represent the highest percentages of jurisdictions having particular programs. For example, 60.00% of the jurisdictions in the HPH Group have residential self-haul greenwaste programs, while only 40.00% of the jurisdictions in the LPH Group have this program. As is evident, twelve programs are more commonly used by jurisdictions in the HPH Group, while twenty programs are more often used by jurisdiction sin the LPH Group.

To assess the importance of the differences in the types of programs in place, those that were more commonly found in jurisdictions with higher diversion rates, compared to those with lower diversion rates, are highlighted in gray. Programs more commonly found in the HPH Group, which also were more common in jurisdictions with higher diversion rates, were residential curbside greenwaste collection and alternative daily cover. Programs that were more commonly found in the LPH Group, which also were more common in jurisdictions with higher diversion rates, were schools (public education), special collection season (regular), and concrete/asphalt/rubble.

	HISPANIC HPH Group Average	HISPANIC LPH Group Average
<u>Composting</u>		
Residential self-haul greenwaste	60.00%	40.00%
Commercial on-site greenwaste pick-up	60.00%	13.33%
Government composting programs	60.00%	40.00%
Food waste composting	60.00%	20.00%
<u>Facility Recovery</u>		
MRF	70.00%	60.00%
Composting facility	60.00%	33.33%
Alternative daily cover	60.00%	26.67%

	HISPANIC HPH Group Average	HISPANIC LPH Group Average
<u>Policy Incentives</u>		
Economic incentives	60.00%	93.33%
Ordinances	50.00%	23.33%
Product and landfill bans	0.00%	13.33%
Other policy incentive	20.00%	6.67%
<u>Public Education</u>		
Outreach	70.00%	93.33%
Electronic	60.00%	100.00%
Schools	70.00%	86.67%
<u>Recycling</u>		
Residential buy-back	70.00%	93.33%
Special collection season (regular)	70.00%	100.00%
Residential drop-off	50.00%	26.67%
Special collection events	40.00%	50.00%
Other recycling	30.00%	0.00%
<u>Source Reduction</u>		
Backyard and on-site compost/mulch	80.00%	66.67%
Material exchange, thrift shops	70.00%	93.33%
Government source reduction programs	50.00%	73.33%
School source reduction programs	10.00%	20.00%
Other source reduction programs	10.00%	0.00%
<u>Special Waste Materials</u>		
Tires	70.00%	86.67%
Concrete/asphalt/rubble	70.00%	80.00%
Wood waste	40.00%	66.67%
Rendering	20.00%	53.33%
Sludge (sewage/industrial)	40.00%	13.33%
<u>Transformation</u>		
Tires	10.00%	40.00%
Biomass	0.00%	53.33%
Waste to energy	40.00%	0.00%

When the Los Angeles jurisdiction was removed from the HPH Group, only six waste reduction programs are more commonly used by jurisdictions in the HPH Group, while twenty-six programs are more often used by jurisdictions in the LPH Group. This is shown below by the highlighted percentages.

The only program more commonly found in the HPH Group without Los Angeles, and in jurisdictions with higher diversion rates, was the alternative daily cover program. Programs that were more commonly found in the LPH Group, which also were more common in jurisdictions with higher diversion rates, were schools (public education), special collection season (regular), and concrete/asphalt/rubble.

	W/O LA HISPANIC HPH Group Average	HISPANIC LPH Group Average
<u>Composting</u>		
Residential self-haul greenwaste	55.56%	40.00%
Commercial on-site greenwaste pick-up	55.56%	13.33%
<u>Facility Recovery</u>		
MRF	66.67%	80.00%
Composting facility	77.78%	33.33%
Alternative daily cover	77.78%	26.67%
Transfer station	33.33%	46.67%
<u>Policy Incentives</u>		
Economic incentives	55.56%	33.33%
Ordinances	44.44%	33.33%
Product and landfill bans	0.00%	33.33%
<u>Public Education</u>		
Print	88.89%	100.00%
Outreach	66.67%	33.33%
Electronic	55.56%	100.00%
Schools	66.67%	86.67%
<u>Recycling</u>		
Commercial on-site pickup	66.67%	80.00%
Residential buy-back	66.67%	33.33%
Special collection season (regular)	66.67%	100.00%
Residential drop-off	44.44%	76.67%
Government recycling programs	55.56%	33.33%
Special collection events	44.44%	80.00%
Other recycling	33.33%	0.00%
<u>Source Reduction</u>		
Backyard and on-site compost/mulch	77.78%	66.67%
Material exchange, thrift shops	66.67%	33.33%
Government source reduction programs	44.44%	33.33%
School source reduction programs	0.00%	20.00%
<u>Special Waste Materials</u>		
Tires	66.67%	33.33%
Concrete/asphalt/rubble	66.67%	100.00%
Scrap metal	55.56%	33.33%
Wood waste	44.44%	66.67%
Rendering	22.22%	33.33%
Sludge (sewage/industrial)	33.33%	13.33%
<u>Transformation</u>		
Tires	11.11%	100.00%
Biomass	0.00%	33.33%
Waste to energy	33.33%	0.00%

Differences in the extent to which jurisdictions within the MPH Group and LPH Group have individual waste reduction programs in place are presented below. As shown with the highlighted percentages, sixteen programs were more often found in the MPH Group, while fifteen were more often found in the LPH Group.

Programs that were more commonly found in the MPH Group, which also were more common in jurisdictions with higher diversion rates, were residential curbside greenwaste collection, other composting, schools (public education), other public education, residential curbside recycling, business waste reduction program, procurement, and concrete/asphalt/rubble. Programs that were more commonly found in the LPH Group, which also were more common in jurisdictions with higher diversion rates, were commercial self-haul greenwaste and commercial self-haul recycling.

	HISPANIC MPH Group Average	HISPANIC LPH Group Average
<u>Composting</u>		
Residential curbside greenwaste collection	88.89%	73.33%
Commercial self-haul greenwaste	44.44%	60.00%
Residential self-haul greenwaste	22.22%	40.00%
Government composting programs	11.11%	40.00%
Other composting	44.44%	6.67%
<u>Facility Recovery</u>		
Composting facility	55.56%	33.33%
Alternative daily cover	55.56%	26.67%
Landfill	22.22%	40.00%
<u>Policy Incentives</u>		
Economic incentives	66.67%	93.33%
Ordinances	66.67%	73.33%
Product and landfill bans	0.00%	13.33%
<u>Public Education</u>		
Electronic	88.89%	100.00%
Schools	100.00%	86.67%
Other public education	22.22%	0.00%
<u>Recycling</u>		
Commercial on-site pickup	100.00%	80.00%
Residential curbside	100.00%	86.67%
Government recycling programs	44.44%	66.67%
School recycling programs	33.33%	46.67%
Commercial self-haul	22.22%	40.00%
Other recycling	22.22%	0.00%
<u>Source Reduction</u>		
Business waste reduction program	100.00%	80.00%
Procurement	88.89%	53.33%
Material exchange, thrift shops	66.67%	93.33%
Government source reduction prgs.	100.00%	73.33%
School source reduction programs	33.33%	20.00%
<u>Special Waste Materials</u>		
Concrete/asphalt/rubble	100.00%	80.00%
Scrap metal	77.78%	66.67%
Wood waste	55.56%	66.67%
Rendering	33.33%	33.33%
<u>Transformation</u>		
Biomass	11.11%	33.33%
Waste to energy	11.11%	0.00%

Overall Conclusions Relative to the Number and Type of Waste Reduction Programs.

Overall, jurisdictions in which at least 31.00% of their populations are Hispanic (i.e., HPH Group) have fewer waste reduction programs than do jurisdictions with fewer than 15.00% Hispanics. The average jurisdiction in the HPH and LPH Groups had 25.20 and 27.20 waste reduction programs respectively. While the HPH Group had more composting and facility recover programs, they had fewer of most other programs. The differences in the numbers of programs became even more pronounced when the Los Angeles jurisdiction was removed from the HPH Group (i.e., 23.56 versus 27.20 waste reduction programs). On the average, jurisdictions in the MPH Group had about the same number of waste recovery programs as did the LPH Group.

Considerable differences exist with respect to the specific types of waste reduction programs used among the jurisdiction groups. There appeared to be more programs in place in the LPH Group, which also were more common among jurisdictions with higher diversion rates. This suggests that this group had more programs that may have greater impacts on diversion rates than was found in the HPH Group. However, the HPH Group had a higher overall diversion rate than did the LPH Group. The MPH Group tended to be more likely to have programs common to jurisdictions with higher diversion rates than did either the HPH or LPH Groups.

While this analysis identified differences in the number and types of waste reduction programs in place in the jurisdiction groups, it could not directly assess the magnitude or quality of the programs. There is a lack of data concerning how comprehensive and/or intense individual programs are, and no way to determine the extent to which resources are committed to their operation and management.

In the future, the CIWMB needs to develop mechanisms to examine the magnitude and quality of individual waste reduction programs, and the extent to which they contribute to achieving targeted diversion rates. This is apparent from the fact that jurisdictions in the HPH Group had fewer waste reduction programs but, as will be shown in the next section of the Findings, a higher overall diversion rate. This suggests that there may be variations in the quality of the programs, particular combinations of programs that are more effective than others, and/or programs that need to be carefully tailored to the demographic and geographic characteristics of the areas.

Furthermore, CIWMB needs data to assess the relationship between the resources committed to individual programs and the extent to which they assist in reaching targeted diversion rates. Jurisdictions in the LPH Group have considerably more programs, but a lower overall diversion rate, when compared to the HPH Group. An issue that becomes of concern is whether the resources committed to such programs are beneficial and cost effective.

Comparison of Jurisdiction Diversion Rates Based on Population Diversity

Another key issue in this study is whether jurisdictions with more diverse populations have higher or lower diversion rates than those with less diverse populations. This

analysis was undertaken by first examining the diversion rates of the HPH, MPH, and LPH Groups. Then, the data was reanalyzed by grouping those jurisdictions with diversion rates of 50.00 or higher and diversion rates of less than 50.00 to examine their ethnic compositions. Results of these analyses are presented in Table Six.

Results Based on Population Diversity. As previously indicated, ten jurisdictions were in the HPH Group, nine in the MPH Group, and fifteen in the LPH Group. Within each group, diversion rates were weighted by the population size of the respective jurisdictions and then averaged. This ensured that the diversion rates were representative of the sizes of the jurisdictions based on population. For example, San Jose represented 16.58% of the population in the HPH Group, and its diversion rate of 46.00 was weighted accordingly. Similarly, Santa Ana had 5.70% of the population, and this percentage was used to weight its diversion rate of 56.00.

The weighted average diversion rates for the three jurisdiction groups and the percent of the jurisdiction group which is Hispanic are shown below:

	Diversion Rate	Percent Hispanic
HPH Group	43.80	45.43%
HPH Group without Los Angeles	32.43	40.66%
MPH Group	45.50	23.64%
LPH Group	33.54	13.63%

The results indicate that the average diversion rate was 30.59% higher for jurisdictions in the HPH Group than the LPH Group (i.e., 43.80 compared to 33.54). It also is important to note that the percent of the population which were Hispanic was 3.33 times greater in the HPH Group (i.e., 45.43% versus 13.63%).

When the Los Angeles jurisdiction was removed from the HPH Group, the diversion rate declined to 32.43. This is 3.31% lower than the diversion rate for the LPH Group. The reason for this is that the Los Angeles jurisdiction had a diversion rate of 49.00, and constituted 68.65% of the HPH Group's population. When Los Angeles was taken out of the analysis, the populations of the two jurisdiction groups were nearly identical, although 40.66% of the HPH Group's population was Hispanic compared to 13.63% for the LPH Group.

The MPH Group had a higher diversion rate than the other jurisdiction groupings. It was 3.88% higher than the HPH Group, 40.30% higher than the HPH Group without Los Angeles, and 35.66% higher than the LPH Group. However, the percent of the MPH Group's population that was Hispanic was 47.96% lower than the HPH Group, but 73.44% higher than the LPH Group.

Results Based on Diversion Rates. To further examine possible differences among jurisdictions, diversion rates and diversity percentages were recomputed based on whether each jurisdiction's rate met or exceeded the 50.00 target. The >50.0 Group

contained jurisdictions with diversion rates of at least 50.00, while the <50.0 Group had rates below 50.00.

The differences in diversion rates and the diversity of the populations of these two groups are shown below:

	Diversion Rate	Percent Hispanic
>50.0 Group	55.09	48.91%
<50.0 Group	39.76	34.99%
<50.0 Group without Los Angeles	30.74	22.66%

Thirteen jurisdictions comprised the >50.0 Group, and the average rate, weighted by population size, was 38.55% higher than the <50.0 Group. This group also had a 39.78% higher percentage of its population being Hispanic.

The Los Angeles jurisdiction was in the <50.0 Group because its diversion rate was 49.00. When it was removed from the analysis, the diversion rate for the <50.0 Group fell to 30.74, and the Hispanic population declined to 22.66% of the total.

Overall Conclusions Concerning Population Diversity and Diversion Rates. This analysis examined diversion rates and population diversity in two ways. The findings indicate that the diversion rate tended to be higher in jurisdictions in which Hispanics comprise a greater percentage of the population. This was found for both the HPH and MPH Groups, although the jurisdictions other than Los Angeles in the HPH Group exhibited a diversion rate that was slightly lower than found in any other group.

Furthermore, jurisdictions with higher diversion rates tended to have higher percentages of their populations which were Hispanic. When diversion rates declined, so did the percent of the population which were Hispanic. These findings are consistent with the analysis based on population diversity.

One of the important issues that could not be addressed in this study was whether there are net imports or exports of wastes to or from jurisdictions with greater population diversity. This is of concern in terms of environmental justice to ensure that jurisdictions with greater diversity are not recipients of waste streams which socially and/or economically damage their communities. Data was not available that could clearly show how much waste was exported, and to which jurisdictions it was sent.

Additional issues in this regard are whether imported and/or exported wastes are more damaging to the environment, more difficult to dispose of, and/or more difficult to recycle. These are significant issues that should be addressed because they may have pronounced impacts on the quality of life in highly diverse communities.

Another issue that could not be resolved was whether there are cause and effect relationships between diverse populations and the waste streams they generate and the

diversion rates that their communities achieve. While this analysis showed possible relationships, it could not conclude with a high degree of certainty that directional relationships exist (e.g., Hispanic populations have smaller waste streams and/or have caused the diversion rates to be high). This is an area also needing further study because if directional relationships can be found, special programs targeted to diverse populations could be especially cost effective.

Preliminary Jurisdiction Survey Results

A survey of the jurisdictions included in this study was conducted to identify specific waste reduction efforts and programs being undertaken, and to obtain opinions as to what programs were successful. The questionnaire, contained in Appendix B, was e-mailed to contact people at each of the 36 jurisdictions, and follow-up calls to them were made by DPR student interns.

Generally, the issues addressed in the study centered on:

- What differences, if any, jurisdictions find in the amount and type of household and business waste streams generated by diverse populations and non-minority populations.
- What jurisdictions do to inform diverse populations of waste management programs, and how effective they consider those to be.
- What special waste reduction programs jurisdictions have for diverse residential populations and businesses, and which one(s) they consider most and least effective.
- What cultural factors among diverse populations have jurisdictions found that enhance and hinder their efforts in waste management. These results will be addressed in the next section of the Findings.

Seven jurisdictions responded to the survey, providing a 19.44% response rate. Two of the jurisdictions indicated that they had no data or opinions concerning the issues identified for the survey. Two others provided very limited information, and stated that they had no special programs for diverse populations.

Only three jurisdictions provided more detailed responses. These should be used with caution because they may or may not be representative of all jurisdictions:

- With respect to waste streams:
 - Few differences were found in either the amount or type of waste streams generated by diverse populations when compared to non-minority populations. This is consistent with the statistical findings comparing the volume and nature of the waste streams presented earlier in these

Findings. However, one jurisdiction indicated that diverse populations tend to dispose of larger items (e.g., mattresses, couches, refrigerators). It also noted that in low-income areas, absentee landlords often allow trash to accumulate.

- Several jurisdictions indicated that the main factor affecting household waste stream volume was the number of people in the household. Differences in waste stream volume might exist if diverse populations tend to have a greater number of people residing within individual households. It was beyond the scope of this study to make such an analysis.
- Some jurisdictions indicated that the main factor affecting business waste stream volume is the type of business. Some types of business, by their very nature, are more likely to generate waste than are others (i.e., grocery stores, construction companies). To the extent that diverse populations tend to own particular types of businesses, this may affect their generation of waste. It was beyond the scope of this study to make such an analysis.
- In terms of informing diverse populations of waste management programs, two jurisdiction printed materials in Spanish. Another jurisdiction disseminated recycling information to its constituents, but did not specify whether this was unique for diverse communities. Overall, it appears that most jurisdictions do not employ special methods for communicating with diverse populations.
- Three jurisdictions indicated they offer special programs for diverse populations. One offers free firewood and mulch and curbside recycling. Another has a greenleaf program, asphalt recycling, and street sweeping. The third jurisdiction has code enforcement officers specifically assigned to areas in which diverse populations reside, has large item special pick-ups, and has special clean-up days in conjunction with local schools. Most programs were considered effective, although some jurisdictions consider them to be too new to judge their value. There were differing views as to the value of curbside recycling because it required so much separation. Overall, not many programs appear to be targeted specifically to the diverse populations.

Based on these limited findings, some preliminary conclusions could be formulated. As previously indicated, because of the small number of reporting jurisdictions, caution should be exercised in using these conclusions for decision making purposes. It appears that jurisdictions:

- Do not believe they have sufficiently large diverse populations in their communities to warrant special waste management programs targeted specifically to them. A study needs to be made of what size and composition of population base are necessary to justify the development of particular programs.

- Do not believe there are differences in the amount and type of waste streams between diverse and non-minority populations. Accordingly, they may not feel that it is necessary to target diverse populations with special educational or waste management programs.
- Do not maintain data as to waste reduction efforts targeted to diverse populations. It is unclear as to whether jurisdictions did not see a need for monitoring or were concerned that doing so would be discriminatory. Irrespective, it does not appear that they have much data on diverse populations, their waste streams, or the programs (if any) focused on them.
- Do not have many programs specifically targeted to informing diverse populations of waste management processes. What little may be done appears focused on reprinting educational materials in Spanish. It could not be determined whether the information content of these materials are adapted to the nuances of individual cultures.
- Have few waste management programs specifically targeted to diverse populations. Most of the programs identified in this survey could be useful for broader populations as well. This is consistent with the findings from the comparisons of waste reduction programs used in the HPH and LPH Groups as reported earlier in the Findings.

To the extent that jurisdictions consider the waste streams to be similar, they may believe that the same waste management programs are appropriate. Accordingly, jurisdictions may not be adequately adapting programs to the cultural differences that could enhance the effectiveness of their waste management efforts. It was beyond the scope of this study to examine this issue further.

- Believe that their most critical needs for serving diverse populations is a promotional/publicity effort. Comments from the responding jurisdictions centered on the need for disseminating information pertaining to why recycling was important, and doing so in manners that are understandable.

Possible Cultural Factors Affecting Waste Reduction Efforts

As previously indicated, jurisdictions with larger Hispanic populations tended to have smaller waste streams and higher diversion rates. Based on a review of the waste reduction programs, the reasons do not appear to reside exclusively in the number or type of programs being offered. Therefore, some other reasons may be causal factors for communities with highly diverse populations having smaller waste streams and those jurisdictions having higher diversion rates.

Accordingly, a preliminary review was made of possible cultural factors that could affect jurisdictions' waste reduction efforts. These findings are based on comments from the survey and discussions with members of the Hispanic community. It is important to note that these are only anecdotal findings. A more in-depth study should be made of the attitudes and practices of various ethnic groups because of the importance of diverse populations to California.

Some of the general cultural factors that were suggested which may enhance jurisdictions' waste reduction efforts include:

- Diverse populations tend not to subscribe to the "disposable society" phenomenon that is commonplace elsewhere. They prefer to fix rather than discarding products, and not just because of economic necessity. This view is consistent with the findings of the study. Household and business waste streams in the HPH and MPH Groups had smaller waste streams than did jurisdictions in the LPH Group. One jurisdiction reported that waste streams in highly diverse population areas contained few recyclable materials. It speculated that recyclable items were separated for their redemption value or scavenged from trash bins by others.
- There is a tendency among some diverse groups to store products for longer periods of time. Reasons for this include anticipating future needs for the products, and passing used but functional products on to others. This also serves to reduce the waste stream.
- Economic necessity may cause members of diverse populations to use products for longer periods of time, and restore or repair products, rather than buy new items. While there may or may not be differences in economic need between diverse and non-minority groups, the belief in some cultures of not being wasteful can be a distinguishing factor that reduces the volume of waste.
- There exists a strong sense of "community" within diverse populations. People may have a tendency to preserve the environment within which they live and work. Since some diverse populations tend to concentrate in particular geographic areas, greater opportunities exist to develop these community feelings which could lead to more extensive efforts to reduce waste streams and/or participate in waste management programs.
- Among individuals with fast-paced lifestyles, the time to recycle could be viewed as an unacceptable inconvenience. One jurisdiction, for example, reported that a drawback to curbside recycling is the time it takes to separate materials.
- The strong sense of "family" exists within some diverse groups which enhance the likelihood that conservation and waste management engaged in

by parents will be passed down to the succeeding generations. One jurisdiction noted that the elderly tend to be more supportive of waste reduction programs. In the Bay Area and Greater Sacramento jurisdiction groups, the jurisdictions with higher diversion rates tended to have larger percentages of their populations 65 or older than did groups with lower diversion rates. In the Los Angeles area, there were no age differences, and in Orange County, more elderly were in the jurisdictions with lower diversion rates. However, to the extent that this occurs in diverse populations, there is a greater probability that this orientation will be carried on by younger age groups.

Some factors that could hinder jurisdictions' waste management efforts include:

- Language barriers exist both in terms of English being a second language to many members of diverse populations, and the fact that some words and expressions do not translate well from English. While language may not technically be a cultural factor, people frequently wish to continue using their primary languages. To the extent that this occurs, it can inhibit communication between jurisdictions and members of diverse populations. The lack of understanding of the need for recycling and the processes to be followed could partly be a result of these barriers.
- There may be a distrust of government. Among some diverse populations, government repression in their native countries made them distrustful of any programs initiated by governmental agencies. While waste management would not seem to be an especially sensitive area, it still is a program promoted and in some instances operated by government.
- There may be a lack of waste reduction education. There is no reason to believe that major differences exist in the level of education among diverse versus non-minority populations. However, educating people who have difficulties with the English language and/or are distrustful of government make the process more difficult.

Overall, based on anecdotal information for this preliminary review, it appears there are at least as many opportunities as barriers based on culture for reaching diverse populations with waste management programs. The possible hindrances, however, are important in that they will be difficult to overcome for jurisdictions with limited budgets. Overcoming language problems and distrust in government may require a long-term sustained effort.

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This study focused on examining the amount and types of waste streams generated by jurisdictions with highly diverse populations compared to those with relatively small diverse populations, comparing the program characteristics of jurisdictions with higher diversion rates versus those with relatively lower diversion rates, and assessing possible differences in diversion rates between jurisdictions with large versus small population diversity. By conducting these analyses, it is possible to identify apparent differences that exist between jurisdictions and possible programmatic reasons for those differences.

The results of these analyses will assist the CIWMB in finding ways to evaluate the effectiveness of their waste reduction programs, identify programs that may address the needs of the diverse populations, and foster better understanding of the impact diverse populations have on California waste streams. These were the goals of the study.

The Summary and Conclusions contains a summary of the key findings, conclusions and recommendations, and general issues that should be addressed in the future.

Summary of Findings

The findings are organized around the critical issues identified for this study, and are presented below in bullet format for ease of readership.

Characteristics of Jurisdictions with Diversion Rates of 50.0 or Greater. Comparisons of jurisdictions with higher and lower diversion rates indicated:

- Lower household waste streams do not necessarily result in higher diversion rates. On a pounds-per-population basis, the waste streams in the >50.0 Group was at least 57.00% higher than in the <50.0 Group. .
- Residential daily disposal based on pounds-per-resident-day, in the >50.0 Group was 17.26% higher than in the <50.0 Group (i.e., 2.65 vs. 2.26), and 15.70% higher on a pounds-per-person basis. (i.e., 1,144.60 versus 989.32).
- Lower business waste streams do not necessarily result in higher diversion rates. Jurisdictions in the >50.0 Group tended to have at least 28.00% larger business waste streams, and especially so for remainder/corrugated cardboard, than was found in jurisdictions in the <50.0 Group.
- Household and business collection programs are not distinguishing features of jurisdictions with higher diversion rates. While certain programs may help improve diversion rates, there is no evidence that they are "the" critical factors.

- The most commonly used waste reduction programs by jurisdictions in the >50.0 Group (i.e., 75.00% or more using the program) were:
 - *Composting:* Residential curbside greenwaste collection
 - *Facility Recovery:* MRF
 - *Public Education:* Print, Outreach, Electronic, Schools
 - *Recycling:* Commercial on-site pickup, Residential buy-back, Special collection season (regular), Residential curbside, Residential drop-off
 - *Source Reduction:* Business waste reduction program, Procurement, Xeriscaping/grasscycling
 - *Special Waste Materials:* White goods, Tires, Concrete/asphalt/rubble
- Programs more commonly used by jurisdictions in the >50.0 Group than the <50.0 Group were:
 - *Composting:* Residential curbside greenwaste collection, Commercial self-haul greenwaste, Other composting
 - *Facility Recovery:* Alternative daily cover
 - *Public Education:* Schools
 - *Recycling:* Residential curbside, Commercial self-haul,
 - *Source Reduction:* Procurement
 - *Special Waste Materials:* Concrete/asphalt/rubble, Shingles
- Overall, in comparing the average number of waste reduction programs used by jurisdictions within the >50.0 and <50.0 Groups, it is evident that sheer numbers are not critical. In most waste reduction program categories, jurisdictions in the <50.0 Group have more programs in place than do jurisdictions in the >50.0 Group.
- Those in the >50.0 Group had significantly more public grant dollars available to them since 1990 than did those in the <50.0 Group. However, when examined on the basis of dollars per person, jurisdictions in the >50.0 Group received \$0.94 per person versus \$0.24 per person in the <50.0 Group.

Amount of Waste Streams. The findings with respect to the amount of household and business waste streams were:

- Jurisdiction groups with higher percentage Hispanic populations have significantly lower household waste streams, as measured on a pounds-per-person basis, than do those with lower percentages of Hispanics. The total household waste stream was 51.09% smaller in the HPH Group than in the jurisdictions comprising the LPH Group.

- Jurisdiction groups with higher percentage Hispanic populations have significantly lower business waste streams, as measured on a pounds-per-person basis, than do those with lower percentages of Hispanics. The total business waste stream in the HPH Group was 55.75% lower than in the LPH Group.
- There is no apparent difference in the nature of the household waste streams between jurisdictions with higher or lower percentages of Hispanics in their populations.
- While each business waste stream in the HPH Group was smaller, it was even lower for food and remainder/composite paper waste streams than for remainder/corrugated cardboard stream.
- The relatively small household and business waste streams in the Los Angeles jurisdiction, as measured on a pounds-per-person basis, contributed substantially to the overall finding that the HPH Group had smaller waste streams than the other groups.

Waste Reduction Programs and Population Diversity. Results of the analysis of the number and type of waste reduction programs being used in jurisdictions with relatively large and small diverse populations were:

- Jurisdictions in the LPH Group have more waste reduction programs than do those with larger Hispanic populations. Overall, twelve waste reduction programs are more commonly used by jurisdictions in the HPH Group, while twenty programs are more often used by jurisdictions in the LPH Group.
- Programs more commonly found in the HPH Group, which also were more common in jurisdictions with higher diversion rates, were residential curbside greenwaste collection and alternative daily cover.

Diversion Rates and Population Diversity. Comparisons of diversion rates between jurisdiction groups with larger and smaller diverse populations showed that:

- The average diversion rate was 30.59% higher for jurisdictions in the HPH Group than the LPH Group (i.e., 43.80 compared to 33.54).
- Thirteen jurisdictions comprised the >50.0 Group (i.e., 50.00 or greater), and the average diversion rate, weighted by population size, was 38.55% higher than in the <50.0 Group. This group also had a 39.78% higher percentage of its population being Hispanic.

Conclusions and Recommendations

Based on these findings, several conclusions and recommendations appear warranted:

- There are strong indications that jurisdictions with more diverse populations have smaller waste streams than do those with less diverse populations. Furthermore, jurisdictions with large waste streams also tend to have higher diversion rates. One of the implications of these two findings is that diverse populations are receptive to waste management programs and already utilize waste reduction techniques. Diverse populations may represent good role models for developing programs and appeals to the broader population. The other implication is that reducing the waste stream will not necessarily result in higher diversion rates. Programs designed exclusively to reduce waste may be missing other critical factors needed to achieve targeted diversion rates.

Recommendation: Jurisdictions should ensure that their programs focus on increasing diversion rates rather than just lowering household and/or business waste streams. Programs designed to reduce waste streams may not necessarily result in higher diversion rates.

- Closely linked to the previous conclusion, the factors that directly affect diversion rates are not well established. Since the magnitude of waste streams appears not to be the sole factor in determining diversion rates, a critical issue that needs to be addressed is what factors most affect diversion rates, and how are they linked to diverse and non-minority populations. If jurisdictions are to achieve targeted diversion rates, a better understanding of cause-and-effect relationships are needed.

Recommendation: If not completed already, the CIWMB and/or jurisdictions need to undertake a study(s) to more clearly define the factors that affect diversion rates, and whether particular combinations of waste management programs achieve better diversion rates in jurisdictions with similar characteristics.

- There are few, if any, differences in the types of waste streams generated by diverse and non-minority populations. The implication is that the types of facilities and programs that are used for the broader population also may be appropriate for diverse populations. While the ways in which jurisdictions inform and educate the two populations may be different, there does not appear to be a need for major capital expenditures for special facilities for targeting the waste streams of diverse groups.

Recommendation: Jurisdictions should periodically examine how they communicate with diverse populations concerning issues of waste management. Since the waste streams are similar to the general population, the programs should be equally appropriate. Differences in effectiveness are

more likely to be based on having educational materials that can penetrate language barriers and be suited to cultural nuances. The CIWMB and/or jurisdictions need to identify the nuances in the cultures of diverse populations so they can use them in conveying waste management information.

- The number of waste reduction programs does not appear to be directly related to diversion rates. Jurisdictions in the <50.0 Group had more waste reduction programs than did those in the >50.0 Group. There were, however, differences in the types of programs employed among those whose diversion rates were higher. There are two implications of this. First, adding more waste management programs does not guarantee that diversion rates will rise. Second, it is likely that the intensity and quality of the waste reduction programs vary among jurisdictions.

Recommendation: If not completed already, the CIWMB and/or jurisdictions should develop methodologies that can be used to measure the quality and results of waste reduction programs. These templates will help jurisdictions assess the effects and cost effectiveness of their programs. Additionally, the CIWMB could examine the viability of establishing a central data base or communication links between jurisdictions for sharing the results of these analyses.

- Highly diverse populations present significant opportunities for jurisdictions that seek to improve their diversion rates. These populations are growing in size and can be targeted with promotional appeals relatively efficiently. While there may be diminishing returns in using this strategy over time, it typically is best to maximize the opportunities for waste management among those most receptive to the program(s) while devising methods for targeting the more difficult populations.

Recommendation: If not done on a regular basis already, jurisdictions should consider directing a portion of their marketing efforts to diverse populations. The CIWMB and/or jurisdictions need to study the diverse populations to better understand their awareness of waste management programs, their attitudes towards waste management, their practices with respect to recycling and other waste management processes, the nuances of their cultures that could affect the marketing efforts directed to them, and the communication methods that would most effectively reach them. Templates can then be developed for promoting waste management programs to diverse populations.

- Grant funding does not show clear lines of benefit. It is unknown whether the number of grants, their dollar value, or the nature of the grants have a significant impact on diversion rates.

Recommendation: If not done already, the CIWMB and/or jurisdictions need to periodically assess how grant funds impact diversion rates. This should be examined once the factors affecting diversion rates are identified.

- Many of the jurisdictions included in this study had diversion rates in 1999 that are well below the targeted level. It will be a serious challenge for many of them to meet the 2000 goals. Adding to the possible problems are a variety of environmental factors which may directly or indirectly affect the ability of jurisdictions to achieve the targeted diversion rate. These include:
 - *The Economy:* To the extent that the downturn in the economy in 2001 continues, the monetary value of recyclable materials may become more important to those in lower income groups. Additionally, if residents of the State have less disposable income, they may be unable to sustain high levels of purchases which will impact household and business waste. The net effect could be beneficial to jurisdictions because waste streams may decline.
 - *State Budget:* Budget deficits projected for the State may result in fewer governmental services being funded, fewer waste reduction programs being developed or otherwise supported, and less money being allocated to waste reduction program promotion. The impact of the budgetary problems could be to diminish waste reduction funding until the State's financial situation improves. The result could be that it will be more difficult for jurisdictions to achieve targeted diversion rates because of budgetary limitations.
 - *Growth in California's Population:* As the population of California grows, there will be increasing urbanization of land. The result could be that landfills, waste recovery facilities, etc. will be located closer to communities. Issues of environmental justice are likely to become more significant if communities adopt a "not in my backyard" mentality as it pertains to waste disposal and recycling. The implication is that jurisdictions will have greater difficulties in locating waste management facilities, and/or will need to develop effective means for convincing communities of the benefits of having these facilities.
 - *Growth in Diversity of California's Population:* The continued increase in the diversity of California's population will create more political pressure to ensure environmental justice. Diverse populations are likely to more strenuously object to a disproportional amount of waste being imported into their communities. This is especially significant since these populations tend to create less waste, and may not want to live with other people's waste streams. The implication is that environmental justice will become an even greater issue in the future in trying to achieve targeted diversion rates.

- *Advances in Technology:* It is unknown what advances will be made in technology which could make recycling easier and/or more efficient, and will make waste management facilities more acceptable to communities within which they are located. The impact of advances in technology could be to make waste reduction more efficient and thereby increase diversion rates and/or make waste management facilities more palatable to communities.

The overall conclusion is that funds will be limited in the future, and jurisdictions may have to conduct cost-benefit studies to determine which programs provide the greatest benefit for the financial and human resources being committed.

Recommendation: If not done already, the CIWMB and/or jurisdictions need to periodically assess how these and possibly other environmental factors will affect waste streams and diversion rates. Information from this assessment might be used to create advisories on how jurisdictions can prepare for adverse/favorable environmental and marketplace conditions in order to maintain or improve diversion rates.

Suggested Issues for Future Study

The results of this study suggest that several issues need further analysis if diversion rates are to rise, diverse populations are to be served appropriately, and environmental justice is to be achieved. Questions that need to be periodically addressed include:

- What are jurisdictions doing in terms of their programs, processes, and marketing efforts to serve diverse populations and ensure environmental justice? To what extent do they involve local communities, and especially those with highly diverse populations, in decisions regarding waste management programs (e.g., permitting and program issues). What are jurisdictions' plans for ensuring environmental justice?
- What are the diverse populations' levels of awareness of, attitudes toward, and participation in waste stream management and waste reduction programs? What are the cause and effect relationships with respect to the higher diversion rates found in more diverse jurisdictions?
- What factors affect diversion rates, and how does each contribute to achieving or not achieving the targeted goal? An understanding of these factors is critical to developing and marketing waste management programs to diverse and non-minority populations. Factors may range from product packaging by consumer goods companies (e.g., package size, nature of the package material) and consumer purchasing and consumption patterns (e.g.,

purchasing in bulk, purchasing disposable products) to waste management programs used by jurisdictions (e.g., mix of programs, quality of programs).

- How good are the waste reduction programs, and what are their impacts on diversion rates?
- What are the costs and benefits of waste reduction programs, and how can jurisdictions make assessments of the programs both before and after they are in place?
- What is the nature and magnitude of waste streams of businesses owned by diverse populations? How do waste reduction programs deal with those streams? How do the streams and programs affect overall diversion rates?
- What is the nature and magnitude of the flow of waste stream imports and exports between jurisdictions, and how do these flows relate to achieving environmental justice?
- Are there environmental justice problems in California currently or in their early stages? If there are, how extensive are the problems, and where are they most troublesome?
- What impact do waste reductions programs have on the local economies in which they are utilized? This information would be an essential component in any consideration of environmental justice.

Based on the conclusions and recommendations, the CIWMB should consider future studies/actions in the areas described below *if they have not been conducted already*. If they have been conducted, *they should be periodically updated*.

- While this study surveyed a limited number of jurisdictions to ascertain their practices relative to diverse populations, it was not a comprehensive one. A better understanding of what steps jurisdictions are taking to serve diverse populations may help with future efforts to improve overall diversion rates.

Suggested Action: Conduct an in-depth survey of a broader scale of jurisdictions to determine what programs they are using to manage waste streams, control the import of wastes, and increase diversion rates in diverse communities. Particular attention could be given to educational programs being used, and safeguards being set in place to ensure environmental justice.

- An important issue that could not be resolved by this study was whether there are cause and effect relationships between diverse populations and the waste streams they generate and the diversion rates that their communities achieve. While this analysis showed possible relationships, it could not conclude with a high degree of certainty that directional relationships exist (e.g., Hispanic

populations **cause** smaller waste streams and/or **cause** the diversion rates to be high). This is an area needing further study because if directional relationships can be found, special programs targeted to diverse populations could be especially cost effective.

Suggested Action: Conduct an extensive survey(s) of the diverse populations to assess their awareness and understanding of waste management practices, their attitudes toward recycling and other waste management programs, etc.

- As previously indicated, the factors that affect diversion rates are unclear. An understanding of these factors and how they interact in diverse populations is essential in making analyses of current or proposed waste management programs.

Suggested Action: Conduct a two-phase study that first identifies the factors that affect diversion rates, and then examines how those factors influence waste management in diverse and non-minority populations.

- While this analysis identified differences in the number and types of waste reduction programs in place in the jurisdiction groups, it could not directly assess the magnitude or quality of the programs. The fact that jurisdictions in the HPH Group had fewer waste reduction programs but a higher overall diversion rate suggests that there may be variations in the quality of the programs, particular combinations of programs that are more effective than others, and/or that programs need to be carefully tailored to the demographic and geographic characteristics of the areas.

Suggested Action: Develop a methodology for examining the magnitude and quality of individual waste reduction programs, and the extent to which they individually and in combination contribute to achieving targeted diversion rates. This methodology could then be shared with the jurisdictions so they can make their own periodic assessments.

- An assessment needs to be made of the relationship between the resources committed to individual waste management programs and the extent to which they contribute to reaching targeted diversion rates. Jurisdictions in the LPH Group have considerably more programs, but a higher overall diversion rate, when compared to the HPH Group. An issue that becomes of concern is whether the resources committed to such programs are beneficial and cost effective.

Suggested Action: Develop a methodology for conducting cost-benefit analyses of waste reduction programs. This methodology could then be shared with the jurisdictions so they can make their own periodic assessments.

- Two important issues that should be examined in future comparisons of jurisdictions are whether certain types of waste have more adverse environmental impacts than others, and whether certain types are more difficult to reduce and/or dispose of than others. These were not especially critical issues in this analysis because few differences in the waste streams were found among jurisdiction groups for the materials examined. However, this may not be the case in subsequent studies.

Suggested Action: Identify the types of waste that have more adverse environmental impacts and are more difficult to reduce and/or dispose of. Then, conduct a study to determine what specific programs jurisdictions are using to reduce/control these waste streams. This study is critical to assessing the impacts of waste imports and exports, and the effect these flows have on environmental justice.

- Since business waste is a critical element of the waste stream, it would be useful to make assessments of the types of businesses owned by diverse populations and what impact they have on jurisdictions' waste streams. Future efforts to improve diversion rates could be targeted on these businesses if they provide a significant opportunity for doing so.

Suggested Action: Conduct a study to determine if there is a relationship between the types of businesses operated by diverse populations and the nature and magnitude of their waste streams. If there are important relationships that affect community environments, special waste reduction programs and/or marketing efforts can be targeted to those businesses. Attitudinal data could be collected as part of a broader survey of the diverse communities as already suggested.

- To be most efficient in an era of limited resources, assessments of the potential value of waste reduction programs should be made prior to their being implemented. As jurisdictions allocate their resources programmatically, it would be very helpful if they had a mechanism for determining whether particular waste management programs are viable given their size and population base.

Suggested Action: Conduct a study to determine what size and composition of population base is necessary to justify the development of particular waste management programs. Information from this study could then be used to develop a methodology for making assessments of possible programs. The methodology could be shared with jurisdictions for their future use.

- An overall study of the economics of waste reduction efforts and how they impact communities would be extremely valuable in promoting waste management. The financial impacts of waste management programs in terms of what they bring to the community (e.g., jobs, spending in the community)

compared to the potentially undesirable consequences of their being located in or near communities is an important issue for jurisdictions to consider. No consideration of environmental justice could be complete without this type of financial analysis.

Suggested Action: Develop a methodology for evaluating the economic impact on communities of having waste facilities located nearby. The positive (e.g., jobs) and negative (e.g., housing values) impacts could be identified, and a process developed for generating data to better assess the economic consequences. This methodology could be shared with jurisdictions which are considering placing facilities in their communities. It also should be used in making a broader assessment of environmental justice.

- One of the important issues that could not be addressed in this study was whether there are net imports or exports of wastes to jurisdictions with greater population diversity. This is of concern in terms of environmental justice to ensure that jurisdictions with greater diversity are not recipients of waste streams which socially and/or economically damage their communities.

Suggested Action: Conduct an in-depth study of the import and export of waste. This would include examining such issues as how much waste is being imported and exported, what type of waste is being exported, and how imported waste stream impacts a community's environment. Consideration should also be given to which jurisdictions is waste being sent and the implications of that for environmental justice.

- The Los Angeles jurisdiction had a major impact on the findings related to >50.0 versus <50.0 diversion rates, and the diversion rates of highly diverse populations. Because this geographic area contains such a large diverse population, it may warrant a special analysis of its waste management programs and practices to identify opportunities for other jurisdictions.

Suggested Action: Conduct a more thorough analysis of the waste reduction programs being used in Los Angeles to gain insights into the interaction between these types of programs and the diverse populations. The purpose would be to explore mixes of waste reduction programs as they relate to diverse populations, and not be an evaluation of this particular jurisdiction's efforts.

- It would be helpful to study and report on more than just the four main waste materials and their contributions to the jurisdictions' waste streams. The remaining materials represent over half of the waste stream, and they may have characteristics that have more or less harmful effects on communities. It would be useful to study all materials that contribute at least 5% to either the household or business waste stream.

Suggested Action: Initially, a study should be conducted to assess the nature and magnitude of other waste streams on communities. If these are deemed to be significant, the CIWMB could then develop a system for reporting on more than just the four main waste materials and their contributions.

- There is a lack of data for assessing business waste streams. It is advisable to develop a better common denominator for assessing differences between jurisdictions with respect to their business waste (e.g., "Pounds-per-business" or "pounds-per-employee"). Unfortunately, data for doing so is not readily available.

Suggested Action: Define an appropriate basis for evaluating business waste streams across jurisdictions, and identify sources of the necessary data.

TABLE ONE
SELECTED COUNTY CHARACTERISTICS

San Francisco County

	1999		2000		2010		2000-10 Annual Growth
<i>Gender</i>							
Female	395,180	50.3%	398,879	50.4%	392,941	50.2%	-0.1%
Male	390,202	49.7%	393,170	49.6%	389,528	49.8%	-0.1%
Total	785,385	100.0%	792,049	100.0%	782,469	100.0%	-0.1%
<i>Age Groups</i>							
0-19	163,652	20.8%	167,127	21.1%	164,666	21.0%	-0.1%
20-64	504,499	64.2%	506,376	63.9%	492,725	63.0%	-0.3%
65+	117,060	14.9%	118,546	15.0%	125,078	16.0%	0.5%
Total	785,385	100.0%	792,049	100.0%	782,469	100.0%	-0.1%
<i>Ethnicity</i>							
Caucasian	319,324	40.7%	317,214	40.0%	288,035	36.8%	-1.0%
Hispanic	125,268	15.9%	128,205	16.2%	142,303	18.2%	1.0%
Asian/Pacific Islander	258,497	32.9%	264,820	33.4%	272,855	34.9%	0.3%
African-American	78,843	10.0%	79,095	10.0%	76,606	9.8%	-0.3%
American Indian	2,708	0.3%	2,715	0.3%	2,670	0.3%	-0.2%
Total	785,385	100.0%	792,049	100.0%	782,469	100.0%	-0.1%

**Bay Area (Alameda, Contra Costa
Santa Clara counties)**

	1999		2000		2010		2000-10 Annual Growth
<i>Gender</i>							
Female	2,049,875	49.9%	2,079,014	49.91%	2,342,122	49.81%	1.2%
Male	2,054,794	50.1%	2,086,339	50.09%	2,359,637	50.19%	1.2%
Total	4,104,674	100.0%	4,165,353	100.00%	4,701,759	100.00%	1.2%
<i>Age Groups</i>							
0-19	1,165,905	28.4%	1,188,553	28.53%	1,298,512	27.62%	0.9%
20-64	2,513,851	61.2%	2,543,228	61.06%	2,837,220	60.34%	1.1%
65+	424,632	10.3%	433,572	10.41%	566,027	12.04%	2.7%
Total	4,104,674	100.0%	4,165,353	100.00%	4,701,759	100.00%	1.2%
<i>Ethnicity</i>							
Caucasian	2,089,519	50.9%	2,086,379	50.09%	1,999,333	42.52%	-0.4%
Hispanic	796,205	19.4%	822,677	19.75%	1,051,348	22.36%	2.5%
Asian/Pacific Islander	798,418	19.5%	837,798	20.11%	1,191,351	25.34%	3.6%
African-American	396,109	9.7%	401,584	9.64%	441,917	9.40%	1.0%
American Indian	17,013	0.4%	16,915	0.41%	17,810	0.38%	0.5%
Total	4,104,674	100.0%	4,165,353	100.00%	4,701,759	100.00%	1.2%

**Greater Sacramento Area (El Dorado,
Placer, Sacramento counties)**

	1999		2000		2010		2000-10 Annual Growth
<i>Gender</i>							
Female	806,585	50.7%	821,023	50.70%	1,001,078	50.63%	2.0%
Male	783,752	49.3%	798,347	49.30%	976,011	49.37%	2.0%
Total	1,590,338	100.0%	1,619,370	100.00%	1,977,089	100.00%	2.0%
<i>Age Groups</i>							
0-19	478,104	30.1%	488,569	30.17%	576,200	29.14%	1.7%
20-64	931,152	58.6%	945,445	58.38%	1,164,641	58.91%	2.1%
65+	180,994	11.4%	185,356	11.45%	236,248	11.95%	2.5%
Total	1,590,338	100.0%	1,619,370	100.00%	1,977,089	100.00%	2.0%
<i>Ethnicity</i>							
Caucasian	1,114,605	70.1%	1,128,579	69.69%	1,292,421	65.37%	1.4%
Hispanic	190,517	12.0%	196,236	12.12%	269,321	13.62%	3.2%
Asian/Pacific Islander	146,773	9.2%	153,229	9.46%	234,584	11.87%	4.4%
African-American	121,808	7.7%	124,987	7.72%	160,346	8.11%	2.5%
American Indian	15,943	1.0%	16,339	1.01%	20,417	1.03%	2.3%
Total	1,590,338	100.0%	1,619,370	100.00%	1,977,089	100.00%	2.0%

Los Angeles County

	1999		2000		2010		2000-10 Annual Growth
<i>Gender</i>							
Female	4,864,087	49.9%	4,911,092	49.9%	5,290,555	49.9%	0.7%
Male	4,876,806	50.1%	4,927,769	50.1%	5,313,897	50.1%	0.8%
Total	9,740,899	100.0%	9,838,861	100.0%	10,604,452	100.0%	0.8%
<i>Age Groups</i>							
0-19	3,089,052	31.7%	3,141,901	31.9%	3,366,552	31.7%	0.7%
20-64	5,716,406	58.7%	5,753,175	58.5%	6,122,082	57.7%	0.6%
65+	934,445	9.6%	943,785	9.6%	1,115,818	10.5%	1.7%
Total	9,740,899	100.0%	9,838,861	100.0%	10,604,452	100.0%	100.0%
<i>Ethnicity</i>							
Caucasian	3,206,903	32.9%	3,162,790	32.5%	2,836,543	28.8%	-1.1%
Hispanic	4,358,495	44.7%	4,482,825	46.0%	5,406,738	55.0%	1.9%
Asian/Pacific Islander	1,201,063	12.3%	1,237,371	12.7%	1,456,195	14.8%	1.6%
African-American	928,911	9.5%	927,933	9.5%	876,253	8.9%	-0.6%
American Indian	28,059	0.3%	27,942	0.3%	28,723	0.3%	0.3%
Total	9,740,899	100.0%	9,838,861	100.0%	10,604,452	100.0%	0.8%

Orange County

	1999		2000		2010		2000-10 Annual Growth
Gender							
Female	1,378,687	49.4%	1,400,143	49.4%	1,565,129	49.5%	1.1%
Male	1,409,908	50.6%	1,433,047	50.6%	1,598,647	50.5%	1.1%
Total	2,788,597	100.0%	2,833,190	100.0%	3,163,776	100.0%	1.1%
Age Groups							
0-19	853,418	30.6%	875,816	30.9%	993,840	31.4%	1.3%
20-64	1,669,823	59.9%	1,687,146	59.5%	1,820,523	57.5%	0.8%
65+	264,718	9.5%	270,228	9.5%	349,413	11.0%	2.6%
Total	2,788,597	100.0%	2,833,190	100.0%	3,163,776	100.0%	1.1%
Ethnicity							
White	1,560,033	55.9%	1,560,536	55.1%	1,502,136	47.5%	-0.4%
Hispanic	813,229	29.2%	845,893	29.9%	1,079,497	34.1%	2.5%
Asian/Pacific Islander	358,284	12.8%	373,994	13.2%	521,963	16.5%	3.4%
African-American	43,596	1.6%	44,086	1.6%	50,093	1.6%	1.3%
American Indian	8,670	0.3%	8,681	0.3%	10,087	0.3%	1.5%
Total	2,788,597	100.0%	2,833,190	100.0%	3,163,776	100.0%	1.1%

GENERAL CHARACTERISTICS

	San Francisco	Bay Area	Greater Sacto.	Los Angeles	Orange County
Land area (acres) (#1)	29,890	1,759,360	2,612,210	2,598,380	505,400
Households (#1)					
Number of Households	320,020	1,454,351	604,888	3,102,197	924,972
Population per Household	2.48	2.86	2.68	3.14	3.06
Personal Income--1998 (#1+3calcul)					
Total Personal Income (millions)	\$33,199.3	\$144,973.2	\$42,324.6	\$246,949.2	\$88,634.5
Average Household Income	\$104,887	\$99,682	\$70,135	\$80,880	\$99,282
Per Capita Income	\$42,378	\$34,805	\$26,136	\$25,758	\$32,413
Average Earnings Per Job	\$50,716	\$46,272	\$34,121	\$37,804	\$37,420

EMPLOYMENT AND BUSINESS CHARACTERISTICS

Employment (#1)

	San Francisco	Bay Area	Greater Sacto.	Los Angeles	Orange County
Civilian Labor Force	435,000	2,248,100	812,600	4,761,400	1,512,200
Civilian Employment	422,800	2,192,600	779,700	4,506,100	1,473,800
Unemployment Rate	2.8%	2.49%	4.02%	5.4%	2.5%

Establishments by Industry--98 (#1)

	San Francisco 1998	Bay Area 1998	Greater Sacto. 1998	Los Angeles 1998	Orange County 1998
Construction/Mining/Utilities	4.9%	8.2%	11.8%	5.6%	7.9%
Manufacturing	3.8%	6.6%	3.9%	8.2%	7.8%
Retail & Wholesale	18.0%	20.0%	18.8%	22.4%	21.7%
Transportation/Information	4.6%	4.3%	3.3%	5.8%	3.1%
Finance/Real Estate/Insurance	14.3%	10.1%	11.0%	9.8%	11.5%
Services	54.4%	50.8%	50.9%	48.2%	47.9%
Government	0.0%	0.0%	0.0%	0.0%	0.0%
Other	0.0%	0.1%	0.2%	0.1%	0.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Taxable Sales (millions)--1999 (#1)

	San Francisco	Bay Area	Greater Sacto.	Los Angeles	Orange County
Taxable Sales (millions)	\$12,336.8	\$56,804.2	\$17,776	\$90,205.6	\$37,108.4

TABLE TWO
SELECTED JURISDICTION CHARACTERISTICS

	County	Diversion Rate	2000 Popul. (4)	
San Francisco County:	San Fran.	32	801,400	
Jurisdictions Within Bay Area: (Sample weighted DR = 43.01)				
	County	Diversion Rate	2000 Popul.(4)	
<i>Pittsburg</i>	<i>Contra Costa</i>	68	54,400	<i>Highest</i>
<i>Alameda-Unincorporated</i>	<i>Alameda</i>	64	134,800	<i>Highest</i>
<i>Monte Sereno</i>	<i>Santa Clara</i>	63	3,470	<i>Highest</i>
Piedmont	Alameda	60	11,650	
Palo Alto	Santa Clara	59	61,500	
Union City	Alameda	59	67,200	
Alameda	Alameda	56	73,700	
Albany	Alameda	56	17,850	
Saratoga	Santa Clara	55	31,300	
Sunnyvale	Santa Clara	55	133,200	
San Leandro	Alameda	54	76,700	
San Ramon	Contra Costa	53	45,700	
Milpitas	Santa Clara	51	65,300	
Moraga	Contra Costa	49	17,000	
<i>Fremont</i>	<i>Alameda</i>	48	208,000	<i>Largest</i>
Mountain View	Santa Clara	47	76,000	
Los Gatos	Santa Clara	46	30,450	
<i>San Jose</i>	<i>Santa Clara</i>	46	923,600	<i>Largest</i>
Santa Clara-Unincorporated	Santa Clara	46	105,200	
Martinez	Contra Costa	45	37,050	
Morgan Hill	Santa Clara	45	33,100	
Orinda	Contra Costa	44	17,450	
Walnut Creek	Contra Costa	44	64,700	
Los Altos Hills	Santa Clara	43	8,300	
Campbell	Santa Clara	41	40,850	
Los Altos	Santa Clara	41	28,600	
Newark	Alameda	41	43,050	
Berkeley	Alameda	40	109,500	
Hayward	Alameda	40	129,600	
Livermore	Alameda	38	74,300	
Santa Clara	Santa Clara	38	102,900	
Antioch	Contra Costa	37	84,500	
Cupertino	Santa Clara	34	52,900	
Dublin	Alameda	33	32,500	
<i>Oakland</i>	<i>Alameda</i>	33	402,100	<i>Largest</i>
Lafayette	Contra Costa	32	24,350	
West Contra Costa Integ. Waste Mgt Auth.	Contra Costa	32		
Danville	Contra Costa	30	40,500	

	County	Diversion Rate	2000 Popul.(4)	
Concord	Contra Costa	26	114,900	
Gilroy	Santa Clara	24	40,150	
Pleasanton	Alameda	23	65,900	
Contra Costa-Unincorporated	Contra Costa	20	178,600	
Pleasant Hill	Contra Costa	19	33,150	
Clayton	Contra Costa	17	11,350	Lowest
Emeryville	Alameda	16	7,300	Lowest
Brentwood	Contra Costa	-110	23,100	Lowest
Oakley	Contra Costa	n.a.	n.a.	

Jurisdictions Within Greater Sacto.:
(Sample weighted DR = 35.82)

	County	Diversion Rate	2000 Popul. (4)		
Galt	Sacramento	64	18,050	Highest	
Colfax	Placer	50	1,500	Highest	
Placerville	El Dorado	49	9,325	Highest	
Loomis	Placer	47	5,925		
Auburn	Placer	46	11,400		
Isleton	Sacramento	41	850		
Sacramento	Sacramento	39	406,000	Largest	
South Lake Tahoe	El Dorado	39	23,000		
El Dorado-Unincorporated	El Dorado	38	120,600		
Placer-Unincorporated	Placer	38	96,400		
Folsom	Sacramento	37	52,700	Largest	
Lincoln	Placer	34	9,675		
Rocklin	Placer	33	35,250	Lowest	
Sacramento County/City of Citrus Heights Regional Agency	Sacramento	31	89,200	Lowest	Largest
Roseville	Placer	16	74,200	Lowest	
Unincorporated (no jurisdiction)	Sacramento	n.a.	642,700	n.a.	

Jurisdictions Within LA County:
(Sample weighted DR = 41.88)
(Sample weighted DR without LA = 9.87)

	County	Diversion Rate	2000 Popul.(4)	
Avalon	Los Angeles	78	3,610	Highest
Bradbury	Los Angeles	74	970	Highest
El Segundo	Los Angeles	73	16,850	Highest
Rolling Hills Estates	Los Angeles	72	8,775	
Santa Fe Springs	Los Angeles	72	16,450	
Carson	Los Angeles	71	93,200	
South El Monte	Los Angeles	63	22,700	
Cudahy	Los Angeles	62	25,850	
Hidden Hills	Los Angeles	61	2,050	
Bellflower	Los Angeles	60	68,300	
Burbank	Los Angeles	60	106,500	
Downey	Los Angeles	58	102,100	
Lomita	Los Angeles	57	20,950	
Irwindale	Los Angeles	55	1,200	
Hawaiian Gardens	Los Angeles	54	15,200	

	County	Diversion Rate	2000 Popul.(4)	
Industry	Los Angeles	52	690	
Palos Verdes Estates	Los Angeles	52	14,750	
Inglewood	Los Angeles	51	121,000	
Lancaster	Los Angeles	51	132,400	
Maywood	Los Angeles	51	30,400	
Montebello	Los Angeles	51	65,000	
Palmdale	Los Angeles	51	122,400	
San Dimas	Los Angeles	51	37,350	
Los Angeles	Los Angeles	49	3,823,000	Largest
Glendale	Los Angeles	47	203,700	Largest
Hawthorne	Los Angeles	46	80,500	
Huntington Park	Los Angeles	46	63,600	
Temple City	Los Angeles	46	34,750	
West Covina	Los Angeles	45	107,600	
Lawndale	Los Angeles	44	30,850	
Santa Monica	Los Angeles	43	96,500	
Beverly Hills	Los Angeles	42	35,100	
South Gate	Los Angeles	42	95,300	
Claremont	Los Angeles	40	35,950	
Los Angeles-Unincorporated	Los Angeles	40	1,036,300	
Pasadena	Los Angeles	40	143,900	
Vernon	Los Angeles	38	85	
Monrovia	Los Angeles	37	41,050	
Walnut	Los Angeles	37	33,200	
Calabasas	Los Angeles	35	20,450	
Hermosa Beach	Los Angeles	35	19,650	
Paramount	Los Angeles	35	56,600	
Bell Gardens	Los Angeles	34	45,750	
Glendora	Los Angeles	34	53,800	
Manhattan Beach	Los Angeles	33	36,100	
Azusa	Los Angeles	32	46,250	
Cerritos	Los Angeles	32	58,100	
West Hollywood	Los Angeles	32	38,900	
Bell	Los Angeles	31	38,050	
Culver City	Los Angeles	31	42,800	
La Habra Heights	Los Angeles	31	6,900	
Long Beach	Los Angeles	31	457,600	Largest
Agoura Hills	Los Angeles	29	22,150	
Norwalk	Los Angeles	28	104,500	
Diamond Bar	Los Angeles	27	59,100	
Whittier	Los Angeles	27	86,200	
Covina	Los Angeles	25	48,000	
Santa Clarita	Los Angeles	25	151,300	
Arcadia	Los Angeles	24	54,000	
El Monte	Los Angeles	24	120,000	
Monterey Park	Los Angeles	24	67,400	
Lakewood	Los Angeles	23	81,000	
South Pasadena	Los Angeles	23	26,000	
La Mirada	Los Angeles	21	49,900	
Rolling Hills	Los Angeles	21	2,070	
Artesia	Los Angeles	20	17,150	
Redondo Beach	Los Angeles	19	67,600	

	County	Diversion Rate	2000 Popul.(4)	
Malibu	Los Angeles	18	13,300	
Rosemead	Los Angeles	18	57,300	
San Marino	Los Angeles	17	14,000	
Commerce	Los Angeles	15	13,350	
Signal Hill	Los Angeles	15	9,250	
Alhambra	Los Angeles	11	92,800	
Rancho Palos Verdes	Los Angeles	10	44,950	
San Fernando	Los Angeles	10	24,700	
Duarte	Los Angeles	7	23,000	
Westlake Village	Los Angeles	6	8,600	
La Canada Flintridge	Los Angeles	-1	21,100	
Lynwood	Los Angeles	-11	69,300	
Baldwin Park	Los Angeles	-12	77,100	
Sierra Madre	Los Angeles	-13	11,700	
Pomona	Los Angeles	-23	147,700	
Torrance	Los Angeles	-35	147,400	
Compton	Los Angeles	-49	98,000	
La Puente	Los Angeles	-57	42,200	
La Verne	Los Angeles	-59	34,800	
Gardena	Los Angeles	-82	59,600	Lowest
San Gabriel	Los Angeles	-89	41,600	Lowest
Pico Rivera	Los Angeles	-129	65,200	Lowest

Jurisdictions Within Orange County:
(Sample weighted DR = 49.23)

	County	Diversion Rate	2000 Popul.(4)	
Lake Forest	Orange	68	60,000	Highest
Villa Park	Orange	67	6,775	Highest
Huntington Beach	Orange	66	199,300	Highest
Yorba Linda	Orange	64	63,100	
La Palma	Orange	62	16,550	
Placentia	Orange	59	50,200	
Westminster	Orange	59	87,600	
Cypress	Orange	58	49,050	
Fullerton	Orange	58	128,300	
Santa Ana	Orange	56	317,700	Largest
Garden Grove	Orange	55	158,300	Largest
Anaheim	Orange	50	310,700	Largest
Laguna Beach	Orange	49	25,300	
Seal Beach	Orange	49	27,400	
Fountain Valley	Orange	47	56,900	
Newport Beach	Orange	47	75,600	
Stanton	Orange	47	34,350	
Costa Mesa	Orange	45	106,600	
San Juan Capistrano	Orange	45	32,500	
Buena Park	Orange	44	77,300	
Dana Point	Orange	41	38,000	
La Habra	Orange	41	56,800	
Mission Viejo	Orange	40	98,500	
Tustin	Orange	40	68,300	
San Clemente	Orange	39	50,300	

	County	Diversion Rate	2000 Popul.(4)	
Irvine	Orange	37	144,600	
Laguna Niguel	Orange	37	60,100	
Orange	Orange	35	129,400	
Brea	Orange	32	36,950	
Los Alamitos	Orange	32	12,150	Lowest
Laguna Hills	Orange	22	31,000	Lowest
Orange-Unincorporated	Orange	18	218,800	Lowest
Laguna Woods	Orange	n.a.	n.a.	n.a.
Rancho Santa Marguerita	Orange	n.a.	n.a.	n.a.

JURISDICTION CHARACTERISTICS

Gender

	Male	Female
San Francisco (DR = 32)	52.65%	47.35%
Bay Area:		
Pittsburg (DR = 68)	49.62%	50.38%
Alameda-Unincorporated (DR = 64)	n.a.	n.a.
Monte Sereno (DR = 63)	47.70%	52.30%
Brentwood (DR = -110)	50.37%	49.63%
Emeryville (DR = 16)	47.37%	52.63%
Clayton (DR = 17)	51.08%	48.92%
San Jose (DR = 46)	49.82%	50.18%
Oakland (DR = 33)	48.18%	51.82%
Fremont (DR = 48)	50.59%	49.41%
Greater Sacramento:		
Galt (DR = 64)	50.27%	49.73%
Colfax (DR = 50)	49.80%	50.20%
Placerville (DR = 49)	48.74%	51.26%
Roseville (DR = 16)	48.56%	51.44%
Sacramento/Citrus Heights (DR = 31)	48.05%	51.95%
Rocklin (DR = 33)	49.96%	50.04%
Sacramento (DR = 41)	48.43%	51.57%
Folsom (DR = 37)	56.60%	43.40%
Los Angeles County:		
Avalon (DR = 78)	53.21%	46.79%
Bradbury (DR = 74)	48.45%	51.55%
El Segundo (DR = 73)	50.42%	49.58%
Pico Rivera (DR = -129)	49.57%	50.43%
San Gabriel (DR = -89)	48.35%	51.65%
Gardina (DR = -82)	49.82%	50.18%
Los Angeles (DR = 49)	52.22%	47.78%
Long Beach (DR = 31)	49.36%	50.64%
Glendale (DR = 47)	48.14%	51.86%
Orange County:		
Lake Forest (DR = 68)	49.39%	50.61%
Villa Park (DR = 67)	50.20%	49.80%
Huntington Beach (DR = 66)	50.24%	49.76%
Orange-Unincorporated (DR = 18)	n.a.	n.a.
Laguna Hills (DR = 22)	44.04%	55.96%
Los Alamitos (DR = 32)	48.00%	52.00%
Santa Ana (DR = 56)	52.22%	47.78%
Anaheim (DR = 50)	50.33%	49.67%
Garden Grove (DR = 55)	50.25%	49.75%

Age	0 to 19	20 to 64	65 or older
San Francisco (DR = 32)	18.70%	66.46%	14.84%
Bay Area:			
Pittsburg (DR = 68)	36.00%	55.10%	8.90%
Alameda-Unincorporated (DR = 64)	n.a.	n.a.	n.a.
Monte Sereno (DR = 63)	20.60%	65.20%	14.20%
Brentwood (DR = -110)	35.10%	54.80%	10.10%
Emeryville (DR = 16)	26.00%	59.60%	14.40%
Clayton (DR = 17)	31.50%	63.00%	5.50%
San Jose (DR = 46)	30.30%	60.37%	9.33%
Oakland (DR = 33)	30.30%	56.90%	12.80%
Fremont (DR = 48)	32.20%	63.10%	4.70%
Greater Sacramento:			
Galt (DR = 64)	33.50%	54.00%	12.50%
Colfax (DR = 50)	28.90%	56.00%	15.10%
Placerville (DR = 49)	28.30%	53.70%	18.00%
Roseville (DR = 16)	31.20%	57.30%	11.50%
Sacramento/Citrus Heights (DR = 31)	30.70%	57.90%	11.40%
Rocklin (DR = 33)	33.20%	58.65%	8.15%
Sacramento (DR = 41)	32.03%	56.03%	11.94%
Folsom (DR = 37)	25.80%	64.30%	9.90%
Los Angeles County:			
Avalon (DR = 78)	27.90%	60.80%	11.30%
Bradbury (DR = 74)	33.00%	54.90%	12.10%
El Segundo (DR = 73)	12.60%	77.60%	9.80%
Pico Rivera (DR = -129)	35.20%	54.90%	9.90%
San Gabriel (DR = -89)	27.15%	58.75%	14.10%
Gardina (DR = -82)	28.50%	61.23%	10.27%
Los Angeles (DR = 49)	48.03%	41.01%	10.96%
Long Beach (DR = 31)	29.36%	60.15%	10.48%
Glendale (DR = 47)	24.74%	60.91%	14.35%
Orange County:			
Lake Forest (DR = 68)	31.70%	61.30%	7.00%
Villa Park (DR = 67)	28.00%	64.80%	7.20%
Huntington Beach (DR = 66)	25.23%	65.75%	9.03%
Orange-Unincorporated (DR = 18)	n.a.	n.a.	n.a.
Laguna Hills (DR = 22)	19.50%	40.50%	40.00%
Los Alamitos (DR = 32)	26.00%	59.30%	14.70%
Santa Ana (DR = 56)	38.48%	55.90%	5.62%
Anaheim (DR = 50)	32.21%	59.76%	8.03%
Garden Grove (DR = 55)	31.34%	59.38%	9.28%

Ethnicity

	Caucasian	Hispanic	Asian-American	African-American
San Francisco (DR = 32)	47.27%	13.89%	35.35%	11.38%
Bay Area:				
Pittsburg (DR = 68)	54.40%	29.00%	15.30%	16.40%
Alameda-Unincorporated (DR = 64)	n.a.	n.a.	n.a.	n.a.
Monte Sereno (DR = 63)	88.70%	7.40%	8.30%	0.60%
Brentwood (DR = -110)	79.80%	38.50%	2.40%	0.90%
Emeryville (DR = 16)	18.40%	8.70%	11.10%	65.20%
Clayton (DR = 17)	87.10%	8.40%	7.60%	2.60%
San Jose (DR = 46)	58.78%	31.20%	22.29%	4.40%
Oakland (DR = 33)	29.50%	14.48%	18.66%	42.62%
Fremont (DR = 48)	39.80%	14.20%	46.80%	5.70%
Greater Sacramento:				
Galt (DR = 64)	85.10%	30.00%	3.30%	1.00%
Colfax (DR = 50)	96.30%	7.00%	0.90%	0.50%
Placerville (DR = 49)	94.80%	8.10%	1.30%	0.30%
Roseville (DR = 16)	88.97%	14.17%	5.03%	0.90%
Sacramento/Citrus Heights (DR = 31)	88.00%	11.00%	4.40%	2.70%
Rocklin (DR = 33)	91.25%	10.15%	4.30%	0.90%
Sacramento (DR = 41)	70.51%	19.34%	14.05%	10.95%
Folsom (DR = 37)	83.20%	12.80%	6.00%	7.30%
Los Angeles County:				
Avalon (DR = 78)	96.40%	51.00%	1.60%	1.00%
Bradbury (DR = 74)	50.40%	47.10%	13.20%	10.60%
El Segundo (DR = 73)	85.00%	15.70%	0.80%	0.13%
Pico Rivera (DR = -129)	55.20%	89.30%	3.10%	0.60%
San Gabriel (DR = -89)	47.50%	36.70%	33.10%	1.35%
Gardina (DR = -82)	28.43%	32.13%	33.63%	20.30%
Los Angeles (DR = 49)	41.08%	47.61%	11.33%	18.87%
Long Beach (DR = 31)	57.70%	26.46%	15.52%	11.62%
Glendale (DR = 47)	64.46%	29.76%	17.25%	1.20%
Orange County:				
Lake Forest (DR = 68)	79.80%	16.20%	13.10%	1.90%
Villa Park (DR = 67)	82.30%	8.70%	15.30%	0.50%
Huntington Beach (DR = 66)	81.58%	16.75%	11.13%	0.93%
Orange-Unincorporated (DR = 18)	n.a.	n.a.	n.a.	n.a.
Laguna Hills (DR = 22)	86.70%	10.60%	9.30%	1.10%
Los Alamitos (DR = 32)	84.70%	14.30%	8.70%	1.80%
Santa Ana (DR = 56)	68.43%	64.48%	9.70%	2.08%
Anaheim (DR = 50)	66.64%	36.40%	13.23%	2.19%
Garden Grove (DR = 55)	61.52%	28.42%	25.04%	1.38%

TABLE THREE SELECTED CHARACTERISTICS OF JURISDICTIONS WITH DIVERSION RATES OF 50.0 OR HIGHER

Waste Stream Characteristics

	DIV. RATE >50.0 Grp AVERAGE	DIV. RATE <50.0 Grp AVERAGE	W/O LA DIV. RATE <50.0 Grp AVERAGE	CONCLUSIONS
Diversion Rate	55.09	39.76	30.74	
Top Materials in Household (5) Tons				
Food	19,977	65,607	46,244	
Leaves and Grass	10,469	34,383	24,235	
Remainder/Composite Organic	9,467	31,092	21,916	
Remainder/Composite Paper	8,049	26,427	18,618	
Total	47,962	157,509	111,013	
Pounds/Population—Food	163.88	103.93	163.37	More waste in >50.0 Group
Pounds/Population—Leaves/grass	85.38	54.47	85.62	More waste in >50.0 Group
Pounds/Population—Rem/Comp. Org.	77.36	49.26	77.43	More waste in >50.0 Group
Pounds/Population—Rem/Comp. Paper	65.02	41.52	65.11	More waste in >50.0 Group
Pounds/Population—Total	391.51	249.17	391.51	More waste in >50.0 Group
Household Disposal Rate (1998)	44.22%	41.05%	33.08%	Higher disposal rate in >50.0 Group
Total Household Waste Disposal				
Tons	111,377	314,427	202,318	
Resid. Daily Disposal (lbs/resid. day)	2.26	2.26	2.21	More disposal in >50.0 Group
Pounds/Population	1,755.02	989.32	1,755.02	More disposal in >50.0 Group
Top Materials in Business Disposal				
Food	21,987	72,900	68,941	
Remainder/Composite paper	14,504	47,235	46,229	
Uncoated Corrugated Cardboard	9,284	28,290	26,452	
Leaves and Grass		6,783	13,562	
Lumber	8,184			
Newspaper				
Remainder/Composite Organic				
Film Plastic				
Textiles				
Total	54,308	172,071	162,825	

	DIV. RATE >50.0 Grp AVERAGE	DIV. RATE <50.0 Grp AVERAGE	W/O LA DIV. RATE <50.0 Grp AVERAGE	CONCLUSIONS
Pounds/Population—Food	177.90	138.51	236.75	More waste in >50.0 Group
Pounds/Population—Rem/Comp.paper	117.77	91.39	157.50	More waste in >50.0 Group
Pounds/Population—Rem/Corr.cardb.	74.73	53.37	90.96	More waste in >50.0 Group
Pounds/Population—Leaves/grass		24.41	48.81	
Pounds/Population—Lumber				
Pounds/Population—Newspaper				
Pounds/Population—Rem/Comp.Org.				
Pounds/Population—Film Plastic				
Pounds/Population—Textiles				
Pounds/Population—Total	438.53	326.37	557.75	More waste in >50.0 Group
Total Business Waste Disposal				
Tons per Year	205,482	425,231	395,675	
Employee Daily Disposal (lbs/ee/day)	9.63	22.63	8.86	Less disposal in >50.0 Group
Disposal Related to Tx Sales (lbs/\$100)	15.93	26.62	16.54	Less disposal in >50.0 Group
Pounds/Population	1619.60	869.50	1,500.71	More disposal in >50.0 Group
Waste Stream Disposal #9 (1998)				
Solid waste landfilled (buried)	402,207	2,032,618	567,241	
Solid waste transformed/burned		55,855	33,632	
Solid waste exported		12	23	
Total disposed	402,437	2,088,485	600,896	
Pounds/Population	2691	2,252	2,606	More waste disposed of in >50.0 Group

Waste Reduction Programs

	DIV. RATE >50.0 Grp AVERAGE	DIV. RATE <50.0 Grp AVERAGE	W/O LA DIV. RATE <50.0 Grp AVERAGE	CONCLUSIONS
Household Materials Collection (5)				
Household Diversion	41.67%	50.00%	57.89%	Fewer programs in >50.0 Group
Resid. Curbside Recyclable Collection	83.33%	75.00%	73.68%	More programs in >50.0 Group
Resid. Curbside HHW Collection	41.67%	50.00%	52.63%	Fewer programs in >50.0 Group
Business Materials Collection				
Business Diversion	0.00%	0.00%	0.00%	
Commercial On-Site Recyclable Pickup	75.00%	65.00%	84.21%	Fewer programs in >50.0 Group
Commercial On-Site Greenwaste Pickup	41.67%	50.00%	42.11%	Fewer programs in >50.0 Group

	DIV. RATE >50.0 Grp AVERAGE	DIV. RATE <50.0 Grp AVERAGE	W/O LA DIV. RATE <50.0 Grp AVERAGE	CONCLUSIONS
Waste Reduction Programs				
COMPONENT				
<u>Composting</u>				
Residential curbside greenwaste collection	92.31%	66.67%	65.00%	More programs in >50.0 Group
Commercial self-haul greenwaste	50.52%	52.38%	50.00%	More programs in >50.0 Group
Residential self-haul greenwaste	38.46%	42.86%	40.00%	Fewer programs in >50.0 Group
Commercial on-site greenwaste pick-up	50.77%	28.57%	25.00%	More programs in >50.0 Group
Government composting programs	15.38%	17.62%	45.00%	Fewer programs in >50.0 Group
Food waste composting	7.69%	3.85%	30.00%	Fewer programs in >50.0 Group
School composting programs	0.00%	7.69%	5.00%	Fewer programs in >50.0 Group
Other composting	38.46%	4.76%	5.00%	More programs in >50.0 Group
Total	2.85	2.81	2.65	
<u>Facility Recovery</u>				
MRF	76.92%	76.19%	75.00%	
Composting facility	38.46%	17.62%	45.00%	Fewer programs in >50.0 Group
Alternative daily cover	50.52%	42.86%	40.00%	More programs in >50.0 Group
Landfill	38.46%	33.33%	30.00%	More programs in >50.0 Group
Transfer station	38.46%	17.62%	45.00%	Fewer programs in >50.0 Group
Other facility recover	0.00%	0.00%	0.00%	More programs in >50.0 Group
Total	2.54	2.48	2.35	
<u>HHW</u>				
Education programs	0.00%	0.00%	0.00%	
Permanent facility	0.00%	0.00%	0.00%	
Mobile or periodic collection	0.00%	0.00%	0.00%	
Curbside collection	0.00%	0.00%	0.00%	
Waste exchange	0.00%	0.00%	0.00%	
Other HHW	0.00%	0.00%	0.00%	
Total	0.00	0.00	0.00	
<u>Policy Incentives</u>				
Economic incentives	69.23%	80.95%	80.00%	Fewer programs in >50.0 Group
Ordinances	53.85%	71.43%	70.00%	Fewer programs in >50.0 Group
Product and landfill bans	0.00%	3.85%	10.00%	Fewer programs in >50.0 Group
Other policy incentive	0.00%	10.29%	10.00%	Fewer programs in >50.0 Group
Total	1.15	1.76	1.70	Fewer programs in >50.0 Group
<u>Public Education</u>				
Print	100.00%	95.24%	95.00%	More programs in >50.0 Group
Outreach	84.62%	90.48%	90.00%	Fewer programs in >50.0 Group
Electronic	76.92%	90.48%	90.00%	Fewer programs in >50.0 Group
Schools	92.31%	80.95%	80.00%	More programs in >50.0 Group
Other public education	15.38%	0.00%	0.00%	More programs in >50.0 Group
Total	3.57	3.57	3.55	More programs in >50.0 Group

	DIV. RATE >50.0 AVERAGE	DIV. RATE <50.0 AVERAGE	W/O LA DIV. RATE <50.0 AVERAGE	CONCLUSIONS
<u>Recycling</u>				
Commercial on-site pickup	76.92%	85.00%	85.00%	Fewer programs in >50.0 Group
Residential buy-back	76.92%	95.00%	95.00%	Fewer programs in >50.0 Group
Special collection season (regular)	92.31%	85.71%	85.00%	More programs in >50.0 Group
Residential curbside	100.00%	85.71%	85.00%	More programs in >50.0 Group
Residential drop-off	76.92%	76.19%	75.00%	
Government recycling programs	53.85%	60.00%	60.00%	Fewer programs in >50.0 Group
Special collection events	38.46%	70.00%	70.00%	Fewer programs in >50.0 Group
School recycling programs	38.46%	45.00%	45.00%	Fewer programs in >50.0 Group
Commercial self-haul	23.81%	25.00%	25.00%	More programs in >50.0 Group
Other recycling	14.29%	15.00%	15.00%	More programs in >50.0 Group
Total	6.23	6.40	6.40	Fewer programs in >50.0 Group
<u>Source Reduction</u>				
Backyard and on-site compost/mulch	61.54%	75.00%	75.00%	Fewer programs in >50.0 Group
Business waste reduction program	92.31%	80.95%	80.00%	More programs in >50.0 Group
Procurement	76.92%	57.14%	55.00%	More programs in >50.0 Group
Material exchange, thrift shops	69.23%	85.00%	85.00%	Fewer programs in >50.0 Group
Government source reduction prgs.	61.54%	80.95%	80.00%	Fewer programs in >50.0 Group
Xeriscaping/grasscycling	76.92%	76.19%	75.00%	
School source reduction programs	15.38%	20.00%	20.00%	Fewer programs in >50.0 Group
Other source reduction programs	0.00%	5.00%	5.00%	Fewer programs in >50.0 Group
Total	4.54	4.75	4.75	Fewer programs in >50.0 Group
<u>Special Waste Materials</u>				
White goods	84.62%	90.00%	90.00%	Fewer programs in >50.0 Group
Tires	80.95%	80.00%	80.00%	More programs in >50.0 Group
Concrete/asphalt/rubble	76.19%	75.00%	75.00%	More programs in >50.0 Group
Scrap metal	53.85%	75.00%	75.00%	Fewer programs in >50.0 Group
Wood waste	53.85%	60.00%	60.00%	Fewer programs in >50.0 Group
Rendering	30.77%	45.00%	45.00%	Fewer programs in >50.0 Group
Sludge (sewage/industrial)	7.69%	25.00%	25.00%	Fewer programs in >50.0 Group
Other special waste	0.00%	5.00%	5.00%	Fewer programs in >50.0 Group
Ash	0.00%	5.00%	5.00%	Fewer programs in >50.0 Group
Shingles	0.00%	0.00%	0.00%	More programs in >50.0 Group
Disaster debris	0.00%	9.52%	5.00%	Fewer programs in >50.0 Group
Total	4.31	4.65	4.65	Fewer programs in >50.0 Group
<u>Transformation</u>				
Tires	28.57%	30.00%	30.00%	More programs in >50.0 Group
Biomass	7.69%	25.00%	25.00%	Fewer programs in >50.0 Group
Waste to energy	7.69%	15.00%	15.00%	Fewer programs in >50.0 Group
Other transformation	0.00%	0.00%	0.00%	
Total	0.46	0.70	0.70	Fewer programs in >50.0 Group

	DIV. RATE >50.0 AVERAGE	DIV. RATE <50.0 AVERAGE	W/O LA DIV. RATE <50.0 AVERAGE	CONCLUSIONS
Total Number Of Programs				
<u>Composting</u>	2.85	2.81	2.65	More programs in >50.0 Group
<u>Facility Recovery</u>	2.55	2.48	2.35	More programs in >50.0 Group
<u>HHW</u>	0.00	0.00	0.00	
<u>Policy Incentives</u>	1.15	1.72	1.70	Fewer programs in >50.0 Group
<u>Public Education</u>	3.63	3.57	3.55	More programs in >50.0 Group
<u>Recycling</u>	6.23	6.23	6.40	Fewer programs in >50.0 Group
<u>Source Reduction</u>	4.54	4.86	4.75	Fewer programs in >50.0 Group
<u>Special Waste Materials</u>	4.31	4.76	4.65	Fewer programs in >50.0 Group
<u>Transformation</u>	0.46	0.71	0.70	Fewer programs in >50.0 Group
TOTAL	25.85	27.68	26.75	Fewer programs in >50.0 Group
Grants				
Total Public Grants-Active Number	1.93	0.47	0.93	
Total Public Grants-Active Dollars	369,412	78,449	155,066	
Total Public Grants-1990 to Date No.	6.56	2.01	10.14	Fewer grants in >50.0 Group
Total Public Grants-1990 to Date \$s	1,079,253	1,895,974	1,166,005	Fewer dollars in >50.0 Group
Total Regional Grants-Active No.	0.01	0.96	0.93	
Total Regional Grants-Active Dollars	5,331	925,839	717,020	
Total Regional Grants-1990toDate No	0.06	2.51	3.13	Fewer grants in >50.0 Group
Total Regional Grants-1990toDate\$s	11,686	1,006,132	1,211,469	Fewer dollars in >50.0 Group

TABLE FOUR
JURISDICTION WASTE STREAM CHARACTERISTICS

	HISPANIC HPH Grp AVERAGE	W/O LA HISPANIC HPH Grp AVERAGE	HISPANIC MPH Grp AVERAGE	HISPANIC LPH Grp AVERAGE	CONCLUSIONS
Top Materials in Household (5) Tons					
Food	74,260	50,788	25,129	43,446	
Leaves and Grass	38,918	26,617	13,169	22,769	
Remainder/Composite Organic	35,193	24,070	11,909	20,590	
Remainder/Composite Paper	29,911	20,431	10,125	17,505	
Total	178,283	121,905	60,333	104,310	
Pounds/Population—Food	82.62	166.18	158.55	165.13	Low with LA, higher without LA
Pounds/Population—Leaves/grass	43.30	87.09	83.09	86.54	Low with LA, high without LA
Pounds/Population—Rem/Comp. Org.	39.16	78.76	75.14	78.26	Low with LA, high without LA
Pounds/Population—Rem/Comp. Paper	32.80	65.38	63.88	66.54	Low
Pounds/Population—Total	197.87	397.40	380.67	396.47	Low with LA, high without LA
Household Disposal Rate (1998)	44.95%	34.53%	39.91%	30.08%	Higher disposal rate in HPH Group
	4,940,680	1,117,680	949,900	1,572,820	
Total Household Waste Disposal					
Tons	356,180	201,998	170,278	172,014	
Resid. Daily Disposal (lbs/resid. day)	2.27	2.21	2.97	1.80	Higher HH disposal in HPH Group
Pounds/Population	809.71	2,093.92	1,191.74	1,510.44	Higher without LA; lower with LA
Top Materials in Business Disposal					
Food	69,521	53,450	31,836	88,244	
Remainder/Composite paper	45,611	39,854	19,775	56,223	
Uncoated Corrugated Cardboard	28,343	24,429	10,772	31,604	
Leaves and Grass			8,204	23,793	
Lumber	24,229	20,153			
Newspaper					
Remainder/Composite Organic					
Film Plastic					
Textiles					
Total	167,712	137,913	71,583	200,976	
Pounds/Population—Food	83.68	178.85	196.19	296.07	Lower disposal in HPH Group
Pounds/Population—Rem/Comp. paper	57.44	127.94	123.02	193.99	Lower disposal in HPH Group
Pounds/Population—Rem/Corr. cardb.	35.93	80.08	68.78	112.01	Lower disposal in HPH Group
Pounds/Population—Leaves/grass			42.73	72.55	
Pounds/Population—Lumber	30.51	67.43			
Pounds/Population—Newspaper					
Pounds/Population—Rem/Comp. Org.					
Pounds/Population—Film Plastic					
Pounds/Population—Textiles					
Pounds/Population—Total	208.05	455.88	446.31	688.43	Lower disposal in HPH Group

	W/O LA				
	HISPANIC HPH Grp AVERAGE	HISPANIC HPH Grp AVERAGE	HISPANIC MPH Grp AVERAGE	HISPANIC LPH Grp AVERAGE	CONCLUSIONS
Total Business Waste Disposal					
Tons per Year	440,509	409,210	244,154	394,576	
Employee Daily Disposal (lbs/ee/day)	28.10	9.94	9.84	7.34	Higher in HPH Group
Disposal Related to Taxable Sales (lbs/\$100)	25.98	15.65	20.12	13.81	Higher in HPH Group
Pounds/Population	668.44	1,611.03	1,448.36	1,510.62	High without LA; low with LA
Waste Stream Disposal #9 (1998)					
Solid waste landfilled (buried)	2,616,805	610,773	317,767	574,624	
Solid waste transformed/burned	54,099	435	83,224	22	
Solid waste exported	0	0	0	54	
Total disposed	2,670,904	611,208	400,991	574,700	
Pounds/Population	2048.60	2,397.11	2478.99	2877.56	Lower in HPH Group

TABLE FIVE JURISDICTION WASTE REDUCTION PROGRAMS

	HISPANIC HPH Grp AVERAGE	W/O LA HISPANIC HPH Grp AVERAGE	HISPANIC MPH Grp AVERAGE	HISPANIC LPH Grp AVERAGE	CONCLUSIONS
Household Materials Collection (5)					
Household Diversion	80.00%	70.00%	50.00%	33.33%	More collection in HPH Group
Resid. Curbside Recyclable Collection	80.00%	70.00%	75.00%	73.33%	More collection in HPH Group
Resid. Curbside HHW Collection	30.00%	33.33%	50.00%	53.33%	Less collection in HPH Group
Business Materials Collection					
Business Diversion	0.00%	0.00%	0.00%	0.00%	
Commercial On-Site Recyclable Pickup	80.00%	77.78%	100.00%	71.43%	More collection in HPH Group
Commercial On-Site Greenwaste Pickup	70.00%	66.67%	37.50%	28.57%	More in HPH Group
Waste Reduction Programs					
COMPONENT					
<u>Composting</u>					
Residential curbside greenwaste collection	70.00%	66.67%	88.89%	73.33%	More in MPH Group
Commercial self-haul greenwaste	60.00%	55.56%	44.44%	60.00%	
Residential self-haul greenwaste	60.00%	55.56%	22.22%	40.00%	More in HPH Group
Commercial on-site greenwaste pick-up	60.00%	55.56%	22.22%	13.33%	More in HPH Group
Government composting programs	50.00%	44.44%	11.11%	40.00%	More in HPH Group
Food waste composting	30.00%	22.22%	22.22%	20.00%	More in HPH Group
School composting programs	0.00%	0.00%	0.00%	6.67%	
Other composting	10.00%	11.11%	44.44%	6.67%	More in MPH Group
Total	3.40	3.11	2.56	2.60	More in HPH Group
<u>Facility Recovery</u>					
MRF	70.00%	66.67%	77.78%	80.00%	Fewer in HPH Group
Composting facility	50.00%	44.44%	55.56%	33.33%	More in MPH Group
Alternative daily cover	80.00%	77.78%	55.56%	26.67%	More in HPH Group
Landfill	40.00%	33.33%	22.22%	40.00%	
Transfer station	40.00%	33.33%	44.44%	46.67%	Fewer in HPH Group
Other facility recover	0.00%	0.00%	0.00%	0.00%	
Total	2.80	2.56	2.56	2.27	More in HPH Group
<u>HHW</u>					
Education programs	0.00%	0.00%	0.00%	0.00%	
Permanent facility	0.00%	0.00%	0.00%	0.00%	
Mobile or periodic collection	0.00%	0.00%	0.00%	0.00%	
Curbside collection	0.00%	0.00%	0.00%	0.00%	
Waste exchange	0.00%	0.00%	0.00%	0.00%	
Other HHW	0.00%	0.00%	0.00%	0.00%	
Total	0.00	0.00	0.00	0.00	

		W/O LA			
	HISPANIC	HISPANIC	HISPANIC	HISPANIC	
	HPH Grp	HPH Grp	MPH Grp	LPH Grp	
	AVERAGE	AVERAGE	AVERAGE	AVERAGE	CONCLUSIONS
<u>Policy Incentives</u>					
Economic incentives	60.00%	55.56%	66.67%	93.33%	Fewer in HPH Group
Ordinances	50.00%	44.44%	66.67%	73.33%	Fewer in HPH Group
Product and landfill bans	0.00%	0.00%	0.00%	13.33%	Fewer in HPH Group
Other policy incentive	20.00%	11.11%	0.00%	6.67%	More in HPH Group
Total	1.30	1.11	1.22	1.87	
<u>Public Education</u>					
Print	90.00%	88.89%	100.00%	100.00%	Fewer in HPH Group
Outreach	70.00%	66.67%	100.00%	93.33%	More in MPH Group
Electronic	60.00%	55.56%	88.89%	100.00%	Fewer in MPH Group
Schools	70.00%	66.67%	100.00%	86.67%	More in MPH Group
Other public education	0.00%	0.00%	22.22%	0.00%	More in MPH Group
Total	2.90	2.78	4.11	3.80	Fewer in HPH Group
<u>Recycling</u>					
Commercial on-site pickup	70.00%	66.67%	100.00%	80.00%	More in MPH Group
Residential buy-back	70.00%	66.67%	100.00%	93.33%	More in MPH Group
Special collection season (regular)	70.00%	66.67%	88.89%	100.00%	Fewer in HPH Group
Residential curbside	90.00%	88.89%	100.00%	86.67%	More in MPH Group
Residential drop-off	50.00%	44.44%	88.89%	86.67%	More in MPH group
Government recycling programs	60.00%	55.56%	44.44%	66.67%	Fewer in HPH Group
Special collection events	40.00%	44.44%	66.67%	60.00%	Fewer in HPH Group
School recycling programs	50.00%	44.44%	33.33%	46.67%	More in HPH Group
Commercial self-haul	40.00%	44.44%	22.22%	40.00%	
Other recycling	30.00%	33.33%	22.22%	0.00%	More in HPH Group
Total	5.70	5.56	6.67	6.60	More in MPH Group
<u>Source Reduction</u>					
Backyard and on-site compost/mulch	80.00%	77.78%	66.67%	66.67%	More in HPH Group
Business waste reduction program	80.00%	77.78%	100.00%	80.00%	More in MPH Group
Procurement	60.00%	55.56%	88.89%	53.33%	More in MPH Group
Material exchange, thrift shops	70.00%	66.67%	66.67%	93.33%	Fewer in HPH Group
Government source reduction prgs.	50.00%	44.44%	100.00%	73.33%	More in MPH Group
Xeriscaping/grasscycling	80.00%	77.78%	77.78%	73.33%	
School source reduction programs	10.00%	0.00%	33.33%	20.00%	Fewer in HPH Group
Other source reduction programs	10.00%	11.11%	0.00%	0.00%	More in HPH Group
Total	4.40	4.11	5.33	4.60	Fewer in HPH Group
<u>Special Waste Materials</u>					
White goods	90.00%	88.89%	88.89%	86.67%	More in HPH Group
Tires	70.00%	66.67%	88.89%	86.67%	More in MPH Group
Concrete/asphalt/rubble	70.00%	66.67%	100.00%	80.00%	More in MPH Group
Scrap metal	60.00%	55.56%	77.78%	66.67%	More in MPH Group
Wood waste	40.00%	44.44%	55.56%	66.67%	Fewer in HPH Group
Rendering	20.00%	22.22%	33.33%	53.33%	Fewer in HPH Group
Sludge (sewage/industrial)	40.00%	33.33%	11.11%	13.33%	More in HPH Group
Other special waste	0.00%	0.00%	0.00%	6.67%	
Ash	10.00%	0.00%	11.11%	0.00%	
Shingles	10.00%	11.11%	11.11%	6.67%	
Disaster debris	10.00%	0.00%	0.00%	6.67%	
Total	4.20	3.89	4.78	4.73	Fewer in HPH Group

	HISPANIC HPH Grp AVERAGE	W/O LA HISPANIC HPH Grp AVERAGE	HISPANIC MPH Grp AVERAGE	HISPANIC LPH Grp AVERAGE	CONCLUSIONS
<u>Transformation</u>					
Tires	10.00%	11.11%	33.33%	40.00%	Fewer in HPH Group
Biomass	0.00%	0.00%	11.11%	33.33%	Fewer in HPH Group
Waste to energy	40.00%	33.33%	11.11%	0.00%	More in HPH Group
Other transformation	0.00%	0.00%	0.00%	0.00%	
Total	0.50	0.44	0.56	0.73	Fewer in HPH Group
Total Number Of Programs					
<u>Composting</u>	3.40	3.11	2.56	2.60	More in HPH Group
<u>Facility Recovery</u>	2.80	2.56	2.56	2.27	More in HPH Group
<u>HHW</u>	0.00	0.00	0.00	0.00	
<u>Policy Incentives</u>	1.30	1.11	1.22	1.87	Fewer in HPH Group
<u>Public Education</u>	2.90	2.78	4.11	3.80	Fewer in HPH Group
<u>Recycling</u>	5.70	5.56	6.67	6.60	Fewer in HPH Group
<u>Source Reduction</u>	4.40	4.11	5.33	4.60	Fewer in HPH Group
<u>Special Waste Materials</u>	4.20	3.89	4.78	4.73	Fewer in HPH Group
<u>Transformation</u>	0.50	0.44	0.56	0.73	Fewer in HPH Group
TOTAL	25.20	23.56	27.89	27.20	Fewer in HPH Group
Grants					
Total Public Grants-Active Number	0.42	1.32	0.95	0.88	
Total Public Grants-Active Dollars	49,890	159,122	172,935	209,913	
Total Public Grants-1990 to Date No.	13.13	11.24	8.71	7.85	More grants in HPH Group
Total Public Grants-1990 to Date \$s	2,197,280	1,220,529	1,097,639	973,001	More dollars in HPH Group
Total Regional Grants-Active No.	1.02	1.06	0.00	1.03	
Total Regional Grants-Active Dollars	1,161,667	1,209,874	0.00	404,237	
Total Regional Grants-1990toDate No	2.04	2.12	0.67	4.45	Fewer grants in HPH Group
Total Regional Grants-1990toDate\$s	1,950,800	1,687,528	101,161	958,778	More dollars in HPH Group

TABLE SIX **JURISDICTION DIVERSION RATES BASED ON POPULATION** **DIVERSITY**

Results Based on Population Diversity

	HISPANIC HPH Grp AVERAGE	W/O LA HISPANIC HPH Grp AVERAGE	HISPANIC MPH Grp AVERAGE	HISPANIC LPH Grp AVERAGE	CONCLUSIONS
Diversion Rate	43.80	32.43	45.50	33.54	Higher with LA; lower without LA
Population	5,569,080	1,746,080	1,574,200	1,745,720	Populations similar without LA
Caucasian	46.26%	60.85%	64.92%	50.41%	
Hispanic	45.43%	40.66%	23.64%	13.63%	

Results Based on Diversion Rates

	DIV. RATE >50.0 AVERAGE	DIV. RATE <50.0 AVERAGE	W/O LA DIV. RATE <50.0 AVERAGE	CONCLUSIONS
Diversion Rate	55.09	39.76	30.74	
Population	1,151,625	7,737,375	3,914,375	
Caucasian	69.44%	47.47%	55.15%	
Hispanic	48.91%	34.99%	22.66%	Higher Hispanic population in high DR area

APPENDIX A ACADEMIC RESUME OF CONSULTANT

RESUME

*Dennis H. Tootelian
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Sacramento, CA 95819-6088
Area Code (916), Telephone 971-4096*

EDUCATION

- Ph.D. Arizona State University, January 1973
Major Field: Marketing
Minor Fields: Management and Managerial Accounting
Cumulative Grade Point: 3.95
- M.B.A. California State University, Sacramento, 1969
Major: Marketing
Cumulative Grade Point: 3.75
- B.S. California State University, Sacramento, 1968
Major: Marketing
Minor: Economics
Cumulative Grade Point: 3.92

MEMBERSHIPS

- Member, Advisory Board to the California Senate Select Committee on Small Business Enterprises, 1986.
- Chairman of the Advisory Board to the California Senate Select Committee on Small Business Enterprises, 1979.
- Member of the Executive Committee, California Chamber of Commerce Committee on Small Business, 1977-1979.
- Member, Mayor's Small Business Advisory Committee, Sacramento, California, 1990-1993.
- Member, Mayor's Women and Minority Business Enterprise Task Force, Sacramento California, 1989-1993.
- Chairman, Board of Directors, Methodist Hospital of Sacramento, 1994-1997.

Member, Board of Directors, Mercy Healthcare Sacramento, 1994-Present.

Board of Trustees, Valley Health Care Corporation, Sacramento, California, 1986-1993.

Board of Directors, Krelitz Industries, Inc., Minneapolis, Minnesota, 1988-1993.

Board of Directors, Physician's Clinical Lab, Incorporated, Sacramento, California, 1994-1996.

Member, Advisory Board, Greater Sacramento Small Business Development Center.

President, American Marketing Association (Sacramento Valley Chapter), 1978-1979.

Member, Editorial Advisory Committee, Journal of Hospital Marketing.

Member, Editorial Advisory Committee, Journal of Professional Services Marketing.

Member, Editorial Review Board, Journal of Small Business Management.

Member, Editorial Review Board, Journal of Customer Services in Marketing and Management.

HONORS

Phi Kappa Phi (National Honor Society), initiated 1968.

Beta Gamma Sigma (National Business Honor Society), initiated 1968.

Delta Sigma Pi "Scholarship Key" (graduated top of the 1968 class in Business Administration), 1968.

Associated Students of California State University, Sacramento Outstanding Student Award, in 1969.

Sigma Iota Epsilon (Scholastic Honor Society in Management), initiated 1971.

Delta Sigma Pi, initiated Spring 1973.

Outstanding Alumnus, School of Business and Public Administration, California State University, Sacramento, 1984.

Distinguished Faculty Award, California State University, Sacramento, 1993.

Order of the Hornet, California State University, Sacramento, 1993.

OCCUPATIONAL EXPERIENCE

September 1978 to Present--Professor of Marketing, California State University, Sacramento

Primary Teaching Areas

Marketing Management	Business Policy
Research Methodology	Small Business Management
Marketing Principles	

September 1992 to 1996--Director, Center for Management Services, Sacramento State University, Sacramento

June 1975 to Present--Director, Center for Small Business, California State University, Sacramento

September 1975 to August 1978--Associate Professor of Marketing, California State University, Sacramento

February 1973 to August 1975--Assistant Professor of Marketing, California State University, Sacramento

September 1970 to January 1973--Teaching Assistant, Principles of Marketing, Arizona State University

September 1969 to June 1970--Research Assistant to the Director of Graduate Studies in Business, University of Iowa

June 1969 to September 1969--Researcher, Research and Statistics Division, California Department of Corrections

September 1968 to June 1969--Research Assistant, California State University, Sacramento

TEXTBOOKS

Cases and Classics in Marketing Management. Coauthor: Ralph M. Gaedeke, Harcourt Brace and Jovanovich. Publication date: February 1986.

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Small Business Management. Coauthor: Ralph M. Gaedeke. Scott, Foresman, & Company. Publication dates: January 1980 (1st edition), January 1985 (2nd edition), January 1991 (3rd edition, Allyn & Bacon).

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MONOGRAPHS

Pharmacy Management in a Hospital Setting, Mosby-Yearbook, Inc., 1995. A series of three monographs:

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APPENDIX B

QUESTIONNAIRE USED FOR THE JURISDICTION SURVEY

INTRODUCTION: *Hello, my name is _____, and I am working for Phil Morales at the CIWMB headquarters in Sacramento. We are assisting with a study of minority communities and the waste stream that has been requested by the Board. As one part of this study, we are collecting information from jurisdictions concerning various aspects of their waste management programs as they relate to diverse communities. Are you the correct person I should be talking to?* INTERVIEWER: If not, ask for the name of the person and go to that person. Then, repeat the portion of the Introduction in italics, and proceed to Question 1).

INTERVIEWER: When talking to the correct person, ask the following questions, and write their responses below each question. What you write need not be verbatim, but should capture the essence of their responses.

JURISDICTION: _____

1. What differences, if any, have you found between the type of waste streams generated by diverse populations and those generated by non-minority populations?

2. What differences, if any, have you found between the amount of waste generated by diverse populations and those generated by non-minority populations?

3. What differences, if any, have you found between the type of waste streams generated by businesses owned by diverse populations and those generated by non-minority owners?

4. What differences, if any, have you found between the amount of waste generated by businesses owned by diverse populations and those generated by non-minority owners?

5. Does your jurisdiction have a program(s) for informing diverse populations of waste management programs? INTERVIEWER: If the jurisdiction has a program(s), ask:

a. What does your jurisdiction do?

b. How effective do you consider each program to be?

c. What could be done to make each program more effective?

6. Does your jurisdiction have any special waste reduction programs for diverse residential populations? INTERVIEWER: If the jurisdiction has a program(s), ask:

a. What is the program(s)?

b. For how long has your jurisdiction been using each program?

c. How successful do you consider each program to be?

d. What could be done to improve each program?

7. Does your jurisdiction have any special waste reduction programs for businesses owned by diverse populations? INTERVIEWER: If the jurisdiction has a program(s), ask:

a. What is the program(s)?

b. For how long has your jurisdiction been using each program?

c. How successful do you consider each program to be?

d. What could be done to improve each program?

8. Overall, what waste reduction programs used in your jurisdiction do you consider to be the most effective for diverse populations? INTERVIEWER: For each program, ask:

a. What program(s) is most effective?

b. Why is each so effective?

c. What could be done to make each more effective?

9. Overall, what waste reduction programs used in your jurisdiction do you consider to be the least effective for diverse populations? INTERVIEWER: For each program, ask:

a. What program(s) is least effective?

b. Why is each not effective?

c. What could be done to make each more effective?

10. What cultural factors, if any, within diverse populations in your jurisdiction enhance your jurisdiction's efforts to reduce waste streams?

11. What cultural factors, if any, within diverse populations in your jurisdiction hinder your jurisdiction's efforts to reduce waste streams?

12. Overall, what could be done to better promote waste reduction within diverse populations? How does this differ, if at all, from what could be done to better promote waste management within the general population?

Thank you for your assistance.